

SURVEYS OF THE FISH RESOURCES OF THE EASTERN GULF OF GUINEA

Nigeria, Cameroon and São Tomé and Principe

Survey of the pelagic and demersal resources 11 June - 13 July 2004

Nigerian Institute for Oceanography and Marine Research Lagos

Direcção das Pescas São Tomé and Principe

Institute of Marine Research (IMR)

Bergen

Nigeria

Norway

Ministerio de Pesca y Medio Ambiente Malabo

Equatorial Guinea

Ministry of Livestock, Fisheries and Animal Industry

Douala

Cameroon

IRAD - Fisheries and Oceanography Research

Limbe

Cameroon

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The programme has previously focused on the western Gulf of Guinea, but from 2004 two surveys have covered the area, Part I from Côte d'Ivoire to Benin, and Part II from Nigeria to Gabon. The following surveys has previously 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 (Gulf of Guinea Part I)	14 May - 08 June 2004

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by

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CHAPTER 1 INTRODUCTION

Following a request from the member countries of the Central Atlantic Fisheries Commission (CECAF) to extend the coverage of surveys of the RV "Dr. Fridtjof Nansen" from the western part Gulf of Guinea to also include the eastern part of the region, IMR and FAO agreed to conduct a survey covering the waters from Nigeria to Gabon including São Tomé and Principe. The present survey is an extension of the surveys in the western Gulf of Guinea conducted from Côte d'Ivoire to Bénin, 14 May to 08 June this year. The two surveys will together cover the whole Gulf of Guinea Large Marine Ecosystem (GCLME).

The survey was organised by IMR and FAO under the project GCP/INT/730/NOR: International Cooperation with the Nansen Programme: Fisheries Management and Marine Environment. This project is the continuation of a series of projects and agreements between NORAD, IMR and FAO involving surveys with the research vessel "Dr. Fridtjof Nansen". The objectives of the survey was discussed and agreed upon during a pre-survey meeting held onboard "Dr. Fridtjof Nansen" in Tema, Ghana on 11 June 2004 where representatives from Nigeria, Cameroon, São Tomé and Principe and Norway participated.

1.1 Objectives

The main objectives of the survey were:

- to map the distribution and estimate the acoustic abundance of the main pelagic species/groups 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 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 and on hydrographical transects
- on-the-job training of local scientists in the main survey routines

1.2 Participation

Nigerian Institute for Oceanography and Marine Research:

Catherine Ekaete Ukut-Isebor, Emmanuel Olusegun Oyewo, Akanbi Bamikole Williams

Nigerian Navy Hydrographic Office:

Cdr. Maloude Achinge Maiha, MWO^{SR} Sikiri A. Olufade

Ministry of Livestock, Fisheries and Animal Industry, Service Provincial des Peches du Littoral Douala, SPPLD, Cameroon:

Pierre Nolasque Meke Soung

Station des Recherches Halieutique et Oceanographique, Limbe, SRHOL, Cameroon: Chiambeng George Yongbi, Charles Emene Gabche

Marine Fisheries Research Division, Tema, Ghana: Daniel Ofori-Adu

Direcção das Pescas, São Tomé and Principe:

José Dias de Sousa Lopes, Maria Manuela do Nascimento Bandeira

Ministerio de Pesca y Medio Ambiente, Equatorial Guinea: Simon Osa Aduga, Paulino Esono Mesie

Institute of Marine Research, Norway:

Tore Mørk, Jarle Kristiansen, Jens-Otto Krakstad (cruise leader), and Magne Olsen

Marine Research Institute Reykjavík, Iceland: Haraldur Einarson

1.3 Narrative

The vessel left Tema (Ghana) at 12:50 on the 11th June and steamed eastwards to the border between Benin and Nigeria at 2°42' E where the first transect started at 06:35 on the 12th June, (GMT=local time). The shelf was surveyed during daytime (06:00 to 18:00) by parallel course tracks about 15 NM (nautical miles) apart. Due to a general concern about pirates that reportedly frequents parts of Nigerian waters it was decided to stay outside the shelf break at night. The captain had been asked to have double lookout in the wheelhouse, and it was therefore not possible to do any trawling or zooplankton sampling at night, from 18:00 to 06:00 while in Nigerian waters. Sampling was continues around the clock outside Nigerian territorial waters. The border between Nigeria, Cameroon and Equatorial Guinea south of the Apayafe River (4°40'N) was reached on the 25th June at 11:00, and the vessel thereafter continued to survey the shelf and slope around the Island of Bioco in Equatorial Guinea. However the survey in Equatorial Guinea was terminated after an incidence with their navy on the 26th of June. A separate report has been filed about the incidence. The vessel then

reached Douala on the 28/6 at 13:20, and two Nigerian scientists departed while two from Equatorial Guinea came on board. A meeting with representation from the Ministry of Livestock, Fisheries and Animal Husbandry in Cameroon, the Service Provincial des Pêches du Littoral in Douala, the Station des Recherches Halieutique et Océanographique in Limbe, and the cruise leader was held onboard the vessel. The representatives where informed about the Nansen program, their cooperation with the FAO, and the research activities of Dr. Fridtjof Nansen in the GCLME region. The vessel then departed from Douala on 30th June at 14:15 and steamed towards the border between Nigeria and Cameroon where the second leg of the survey, covering Cameroon and São Tomé and Principe started at 06:00 on the 1st June. The southern border of Cameroon, at the Campo River estuary (2°20'N) was reached on 6th July in the afternoon, and the vessel continued to the Islands of São Tomé and Principe. Their territorial waters where covered from the morning of the 7th July to the evening of the 11th July where after the vessel continued to Port Gentil in Gabon where it arrived on the 12 July at 07:00.

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 deeper than 100 m during daytime. Continuous acoustic registrations were done throughout the survey. To obtain a denser acoustic coverage, night registrations were made in between the daytime course tracks outside of Nigerian waters. Pelagic trawling on registrations was also carried out during dark hours. Additional random blind trawl hauls were made close to the surface, mainly at the inner shelf, with pelagic trawl or bottom trawl equipped with large floats.

CTD-stations were taken at the bottom trawl stations. In addition, hydrographical profiles were made with CTD from the surface down to the bottom, or 500 m depth, at approximately each 60 NM coastline sailed, and at 200 m bottom depth on each transect after 18/6. Zooplankton samples were taken irregularly with Hydrobios multinet plankton sampler.

The Nigerian shelf was covered from 12/6-25/6, Equatorial Guinea from 25/6-26/6, Cameroon from 1/7-6/7 and São Tomé and Principe from 7/7-11/7.

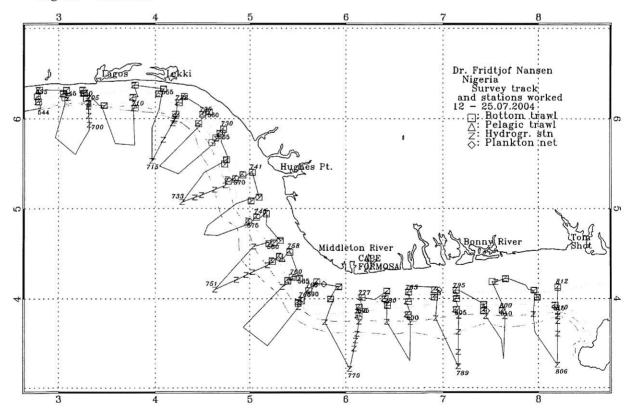
1.4 Survey effort

Figure 1. shows the cruise tracks with trawl, hydrographic and plankton stations. Table 1.1 summarises the survey effort in each sector. No area was calculated for Equatorial Guinea because the survey in this region was interrupted. The area calculated for São Tomé and Principe is the total area for both islands for the depth region surveyed.

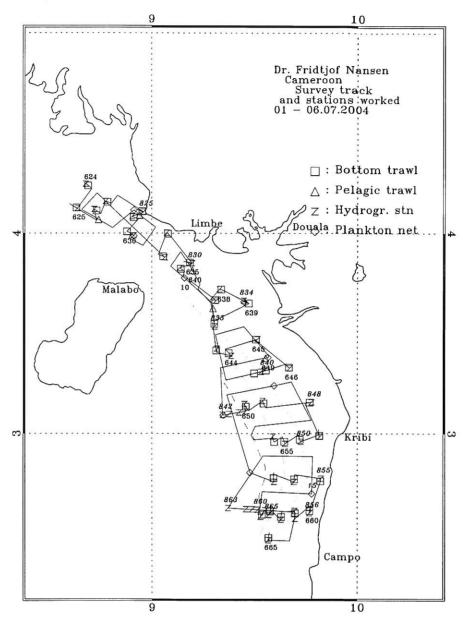
Table 1.1 Number of hydrographic (CTD), plankton (P), pelagic trawl (PT) and bottom trawl (BT) stations, successful swept-area hauls, distance surveyed (NM) and size of survey area (NM²).

	Swept-area hauls						Distance Surveyed			
Region	CTD	P	PT	ВТ	0-30 m	31-50m	51-100 m	100-200 m	>200 m	
Nigeria	119	3	1	74	11	25	25	12	1	-
Area (NM ²)					8 268.2	3 902.0	4 892.0	3 398.4	<u> </u>	1 995
Cameroon	48	9	5	36	12	7	11	5	1	-
Area (NM²)					2 497.4	859.4	677.9	380.7	-	830
Equatorial Guinea	8	0	0	7	0	0	4	2	1	_
Area (NM²)					-	(-	2 -	-	-	-
São Tomé & Principe	59	9	2	10	2	1	9	=	-	568
Area (NM ²)					-	~	521.9	~	-	_
Total Area (NM ²)										4 150

a) Nigeria - Cameroon



b) Cameroon - Gabon



c) São Tomé and Principe

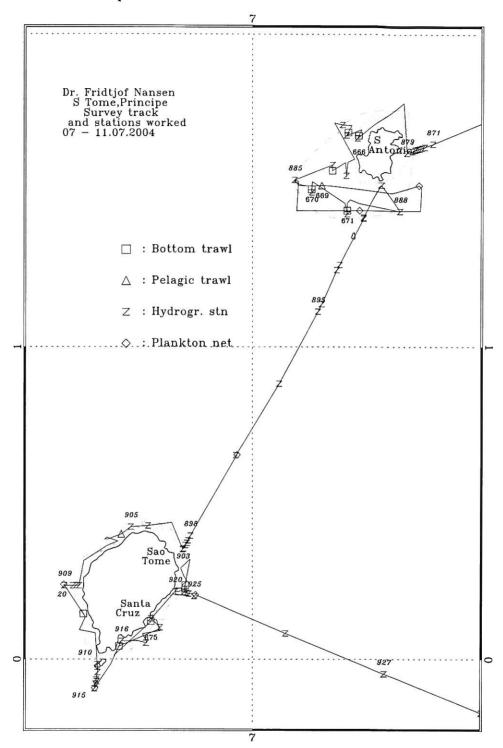


Figure 1.1 Course track with fishing, plankton and hydrographic stations for a) Nigeria, b) Cameroon and c) São Tomé and Principe. Depth contours are indicated

2.1 Meteorological and hydrographical sampling

Temperature, salinity and oxygen

CTD stations were taken in connection with most bottom trawl stations and at five hydrographic transects. Figure 1 presents positions for the CTD stations taken on the five transects. A Seabird 911 CTD plus was used to obtain vertical profiles of temperature, salinity and oxygen. Real time plotting and logging was done using the Seabird Seasave software installed on a PC. The profiles were usually taken down to a few metres above the bottom, but not deeper than 500 m. At some stations two Niskin bottles were triggered in stable water to collect samples for calibration of the salinity and oxygen sensors. The samples are normally analysed for salinity using a Guildline Portasal salinometer, and the oxygen content is determined using the Winkler method.

For oxygen, 16 samples out of 16 from the central part of Nigeria collected 15/6 - 16/6 were accepted for the calibration. A linear regression gave the following formula for correcting the oxygen values:

$$O_2 = O_{2ctd} 1.3471 - 0.3255$$

A second oxygen calibration was conducted on the 10 July, 24 samples out of 24 was accepted for the calibration. A linear regression gave the following formula for correcting the oxygen values:

$$O_2 = O_{2ctd} 1.2376 - 0.3524$$

The calibration was applied for all oxygen samples on São Tomé and Principe.

For the salinity, the analyses of 25 April 2004 were applied. The average differences between the salinometer and CTD values were very small and the CTD values were accepted.

Thermosalino graph

A new SBE 21 Seacat Thermosalinograph was installed during the survey. The thermosalinograph was running routinely from the 21st June 00:00, midnight. However this first survey should be considered a test run. Temperature comparisons between the CTD at 5 m and the thermosalinograph showed temperatures 0.25-0.3°C warmer for the

thermosalinograph because of heating in the pipes. This will be corrected by another temperature sensor mounted on the water inlet at a later stage.

No calibration of the salinity sensor was done during the survey, the factory calibration settings where applied.

Current speed and direction measurements (ADCP)

The ship-born Acoustic Doppler Current Profiler (ADCP) was not in order and no data was logged during the survey.

Meteorological observations

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

2.2 Biological sampling

The trawl catches were sampled for species composition by weight and numbers. The deck sampling procedure is described in more detail by Strømme (1992). Length measurements (total length) were taken for target species. The length of each fish was recorded to the nearest 1 cm below. The carapace length was measured to the nearest 0.5 cm below for shrimp. The mantle length was measured to the nearest 1 cm below for *Sepia* spp. In addition, at a few stations total length and body weight (g) were recorded for the target species in the acoustic survey. Basic information recorded at each fishing stations, i.e. trawl hauls, is presented in Annex I. Pooled length frequency distributions, raised to catch per hour, of selected species by area are shown in Annex II. Annex III gives basic information of all biological samples collected during the survey. Target groups for Nigeria and Cameroon are indicated in Annex IV, while the swept-area estimates are presented in Annex V.

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

2.3 Zooplankton 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 trough the net. Samples where taken irregularly in Nigeria, while a more systematic sampling program were put in place in Cameroon with one sample station each 20 NM close to the coast and offshore.

2.4 Biomass estimates

Acoustic abundance estimation

A SIMRAD EK500 Echo sounder was used and the echograms were stored on both paper and files. The acoustic biomass estimates were based on the integration technique. The Bergen Integrator (BEI, see Knudsen 1990) was used for analysis and allocation of the integrated s_A-values (average area back scattering coefficient in m²/NM²). The splitting and allocation of the integrator outputs (s_A-values) was based on a combination of a visual scrutiny of the behaviour pattern as deduced from echo diagrams, the BEI analysis and the catch composition. The mean integrator value in each sampling unit (s_A-values) was divided between the standard categories/groups of fish, as noted below, on the basis of trawl catches and characteristics of echo traces:

- sardinella (Sardinella aurita and S. maderensis)
- PEL 1 (other clupeids than sardinella and anchovy)
- 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):

$$TS = 20 \log L - 72 dB \tag{1}$$

or in the form

$$C_F = 1.26 \cdot 10^6 \cdot L^{-2} \tag{2}$$

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 (m²/NM²) to fish densities (number per length group per NM²) the following formula was used

$$N_{i} = A \cdot s_{A} \cdot \frac{p_{i}}{\sum_{i=1}^{n} \frac{p_{i}}{C_{Fi}}}$$

$$(3)$$

where:

 N_i = number of fish in length group i A = area (NM²) of fish concentration s_A = mean integrator value (echo density) in area A (m²/NM²) 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:

$$N = \sum_{i=1}^{n} N_i \tag{4}$$

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:

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

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

Biomass estimates based on swept-area method

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

$$B = \frac{A}{a} \cdot \frac{\overline{X}}{q} \tag{6}$$

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} , which is given by:

$$\overline{X}_{st} = \frac{1}{N} \sum_{i=1}^{k} N_i \overline{X}_i = \sum_{i=1}^{k} W_i \overline{X}_i$$
 (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

$$\operatorname{var}(\overline{X}_{st}) = \sum_{i=1}^{k} W_i^2 \operatorname{var} \overline{X}_i = \sum_{i=1}^{k} W_i^2 \frac{s_i^2}{n_i^2}$$
 (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 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 VI on a spreadsheet, ANNEX VII) 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 V were used to calculate standard error (SE) on the arithmetic mean and confidence intervals (see the spreadsheet BIOMASS.xls, and example in ANNEX VII). GRAFER was also used to produce the figures and tables with grouped catch-rates and time-series presented in this report. SE and confidence intervals in the figures are based on the arithmetic mean, but the lognormal based Pennington's estimator can also be calculated (equations 8 to 12 in ANNEX VI).

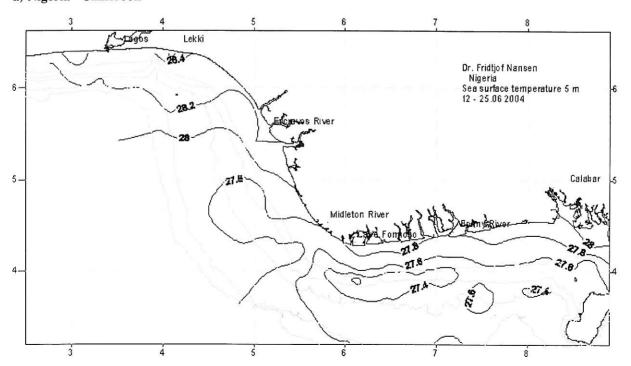
CHAPTER 3 OCEANOGRAPHIC CONDITIONS

3.1 Surface distribution

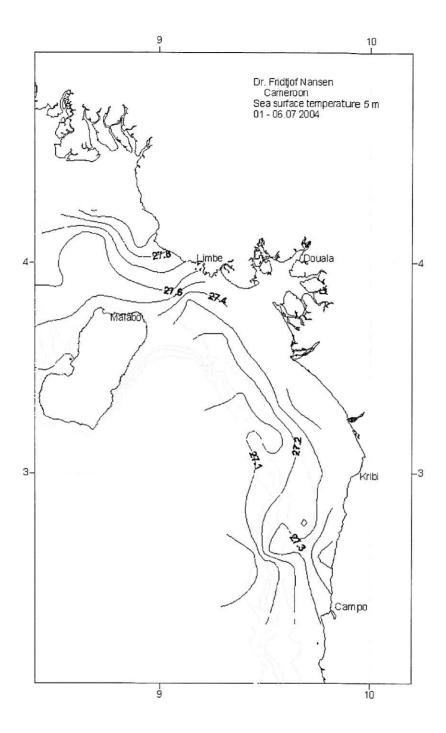
The surface layer temperature (5 m depth) was continuously recorded during the cruise. Figure 3.1a and b show the horizontal distribution of sea surface temperature (SST) for Nigeria – Cameroon and Cameroon to Port Gentil in Gabon respectively. The highest temperature in Nigeria, 28.7 °C, was recorded close to the coast east of Lagos. This area was dominated of water masses with temperature >28°C. Further east and offshore gradually cooler water masses was found, but the surface temperature generally never dropped below 27°C, except a small filament of water slightly cooler, 26.9°C outside Cape Formoso.

In Cameroon temperature extremes where found in the shallow strait between Cameroon and Equatorial Guinea, with temperatures reaching 28.3°C. South of Douala, temperature gradients where along shelf with slightly warmer temperatures inshore and cooler waters in the deeper parts of the survey area. Some of this warmer water seems to be deflected offshore between Kribi and Campo. The sea surface temperature around Principe ranged from 26.9°C – 27.1°C with the warmer temperatures on the northwestern side. The temperature range at São Tomé ranged from 25.8 °C in a pocket on the eastern part of the shelf, to 26.6 °C on the northern side of the shelf.

a) Nigeria - Cameroon



b) Cameroon



c) São Tomé and Principe

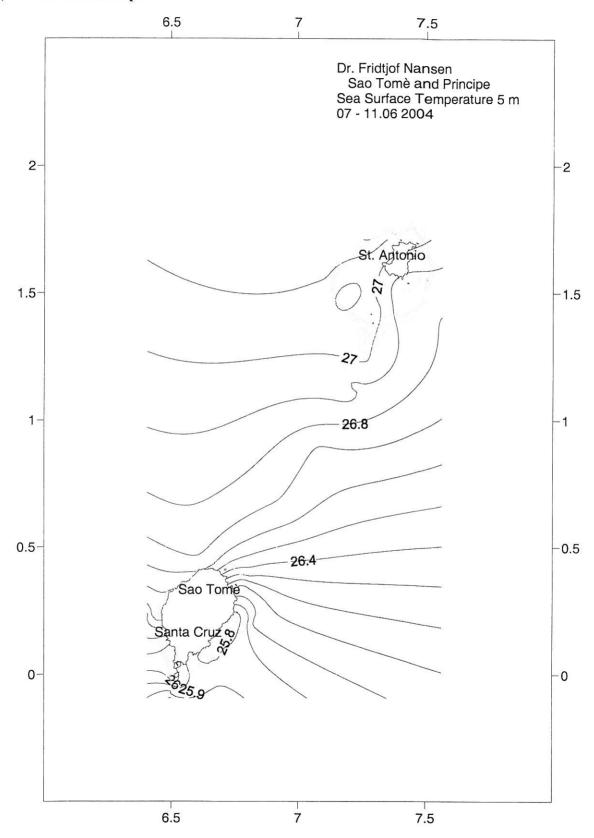
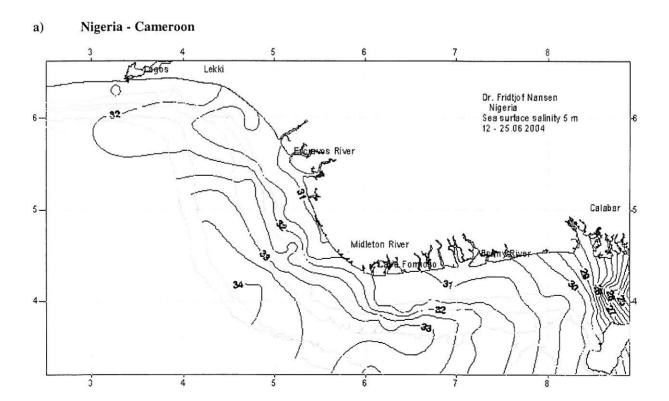
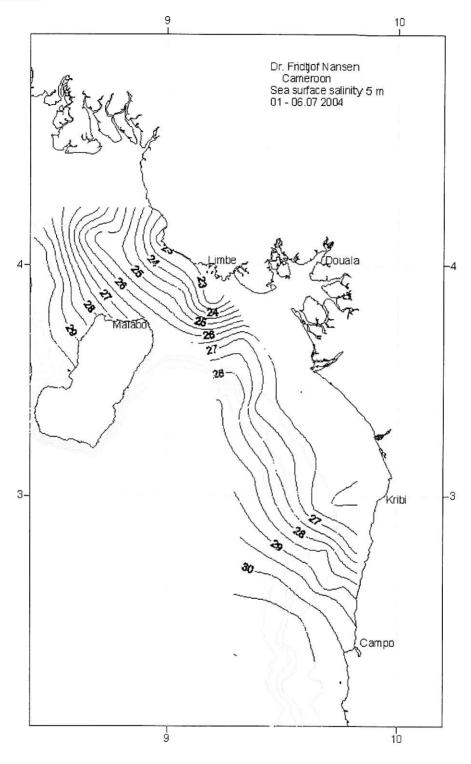


Figure 3.1 Horizontal distribution of surface temperature (5 m depth) at a) Nigeria - Cameroon b) Cameroon - Port Gentil, Gabon and c) São Tomé and Principe.

The surface salinity (Figure 3.2 a and b) was recorded from the CTD stations at 5 m depth. The salinity varied dramatically in the survey area due to fresh water influx from the numerous rivers discharging from the Niger delta into the sea. Generally the salinity ranged between 30 psu and 34 psu in Nigeria, and the salinity increased offshore and westwards. Low salinity, <31 psu, was found in the coastal areas, and especially in the eastern part of Nigeria where the low salinity surface waters was extending offshore and between Bioco Island (Equatorial Guinea) and the mainland. The Gulf of Guinea surface current is directed south and westwards and brings the river water masses in this direction for most parts of the year. In Cameroon surface salinity were ranging between 20.7 psu -30.5 psu. Generally low salinity waters were associated with the higher temperatures in the northern part of Cameroon and inshore, while higher salinities were associated with lower temperatures and areas further south and offshore. The gradients were along shelf over most parts of Cameroon but becoming more across shelf in the Campo area. The sea surface salinity was as expected higher in São Tomé and Principe than on the main land. In Principe sea surface salinity ranged from 33.0 psu in a small area on the western shelf, to 32.8 psu over most of the most of the eastern side of the shelf. In São Tomé surface salinity ranged from 33.2 psu at the southwestern side of the islands to the highest values of 34.4 psu on the southeastern side of the islands. These high salinity values correspond with an area of slightly cooler temperatures, indicating upwelling in this area.



b) Cameroon



c) São Tomé and Principe

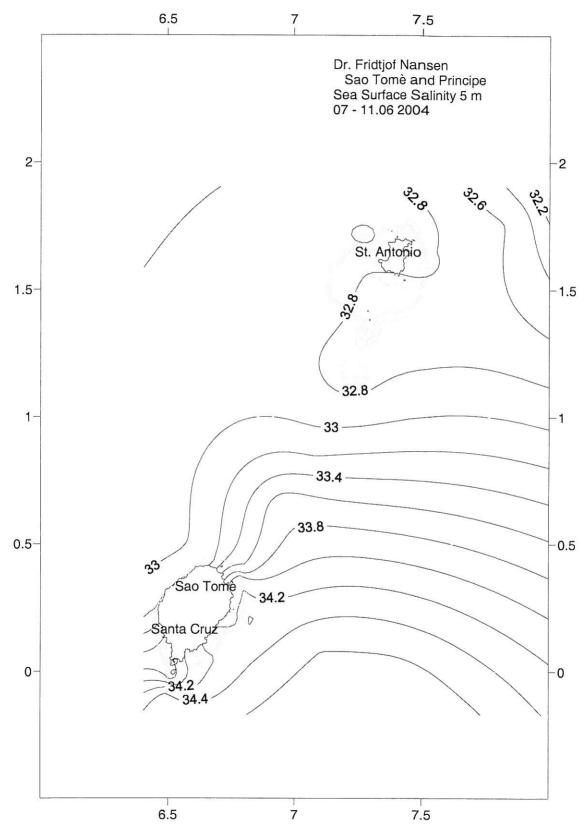


Figure 3.2 Horizontal distribution of surface salinity (5 m depth) at a) Nigeria - Cameroon b) Cameroon – Port Gentil, Gabon and c) São Tomé and Principe.

3.2 Vertical sections

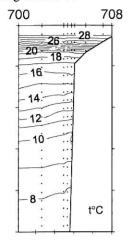
Figures 3.3a-o show the vertical distribution of temperature, salinity and dissolved oxygen as recorded on the hydrographic transects worked during the survey. There were only small differences between the profiles with no signs of upwelling both in Nigeria and Cameroon. The most prominent feature during the survey was a pronounced thermocline and salinocline around 50 m depth in Nigeria, and around 25 m depth further south in Cameroon. The water was well oxygenated throughout the survey area.

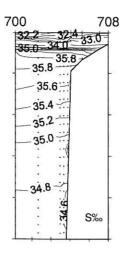
Surface temperature was varied around 27-28°C, typically warmer westwards, and inshore. A temperature maximum corresponded with the thermocline at approximately 50 m depth. Likewise the surface salinity was around 30-32 psu and showed great variability due to the large water discharge from the many rivers in the Niger delta and from Wouri river estuary. The salinity showed an increase to the maximum values around 35.9 psu around approximately 50-70 m depth, and thereafter a small decrease towards the bottom. Dissolved oxygen values ranged between 2 ml/l at the bottom and more than 5 ml/l at the surface with a minimum layer around 250 m depth with oxygen values around 1.4 ml/l.

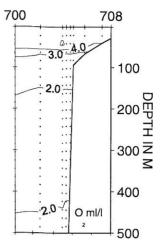
The area of São Tomé and Principe showed surface temperatures of 27°C, a pronounced thermocline at 30 m depth with a decrease in water temperature to 19°C, and bottom waters at 500 m around 8°C. The salinity concentrations on the islands differed somewhat from the picture on the mainland because of the lesser influence from river waters. Surface salinities was around 33 psu, the salinocline at 30 m corresponded with the thermocline, and salinity increased here to 36 psu. Bottom salinity values were around 34.8 psu. The oxygen values in the region ranged from approximately 3 ml/l at the surface, an oxygen maximum around 30 m depth with values around 4.5 ml/l, and a sharp decrease to 3.1 ml/l O₂ at 35 m depth. The oxygen was thereafter stable in the deeper stations to around 150 m depth before they continued to drop to the minimum levels of 1.2 ml/l at approximately 300 m depth. The values thereafter increased slightly in deeper waters.

NIGERIA

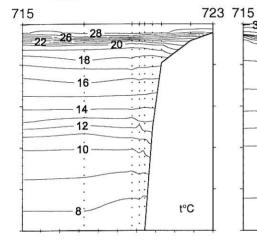


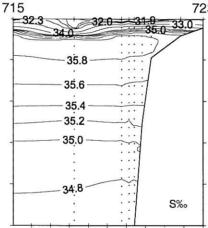


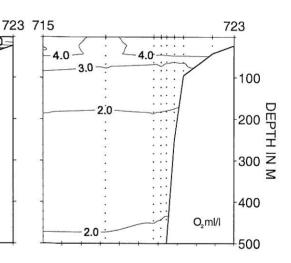




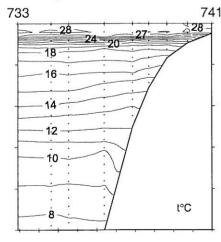
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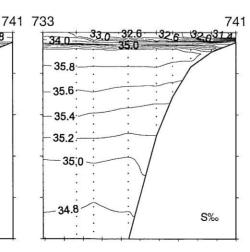


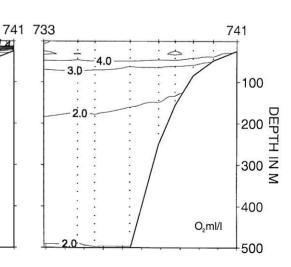


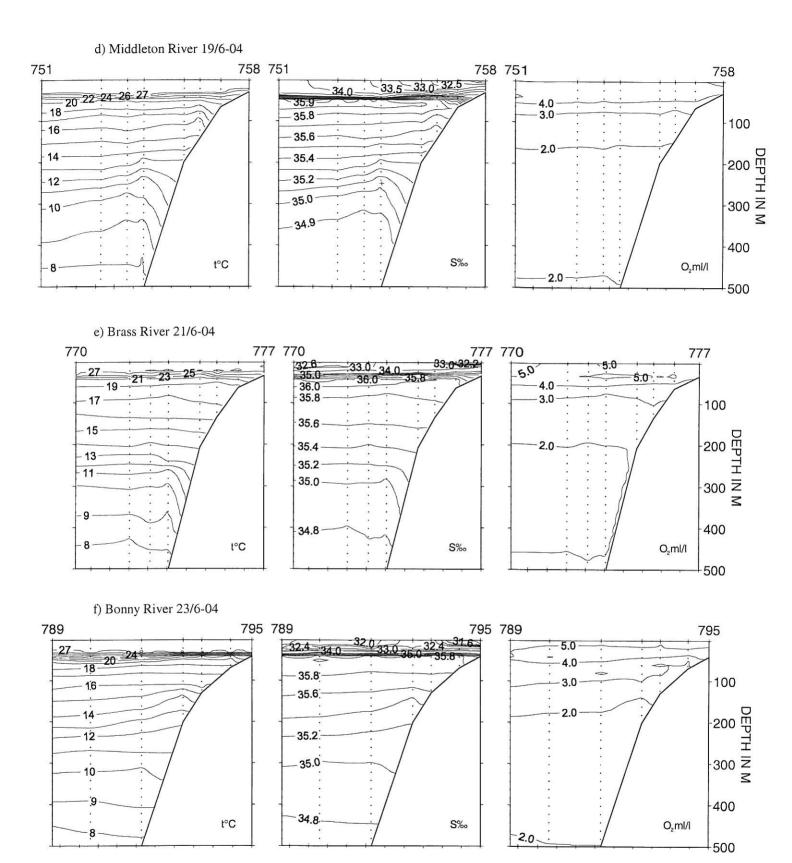


c) Escravos River 17/6-04

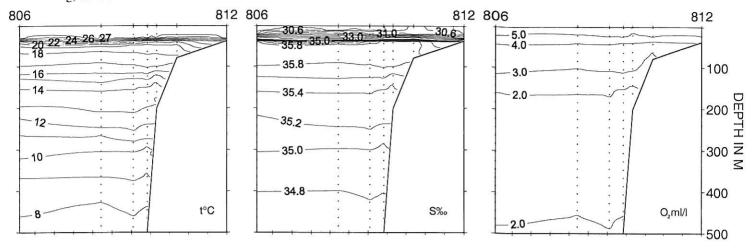






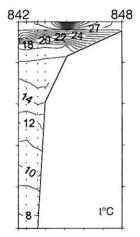


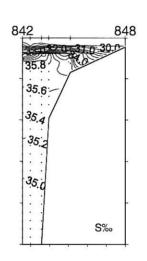


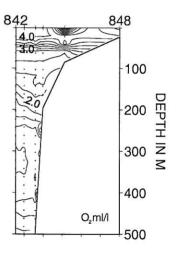


CAMEROON

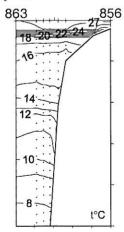


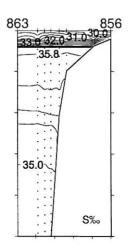


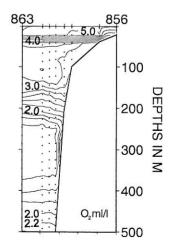




i) Campo River

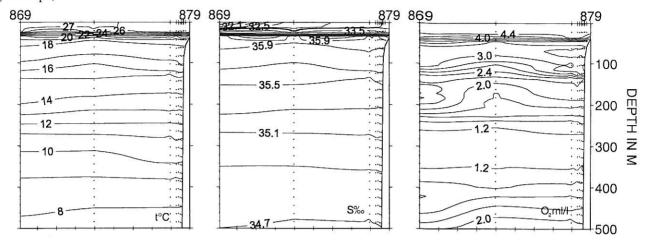




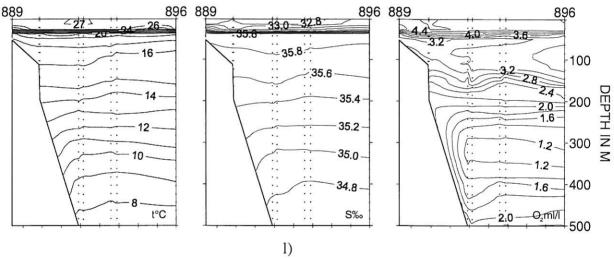


SÃO TOMÉ AND PRINCIPE

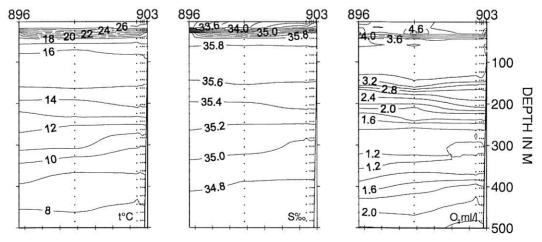
j) Principe, North



k) Principe South



m) São Tomé North



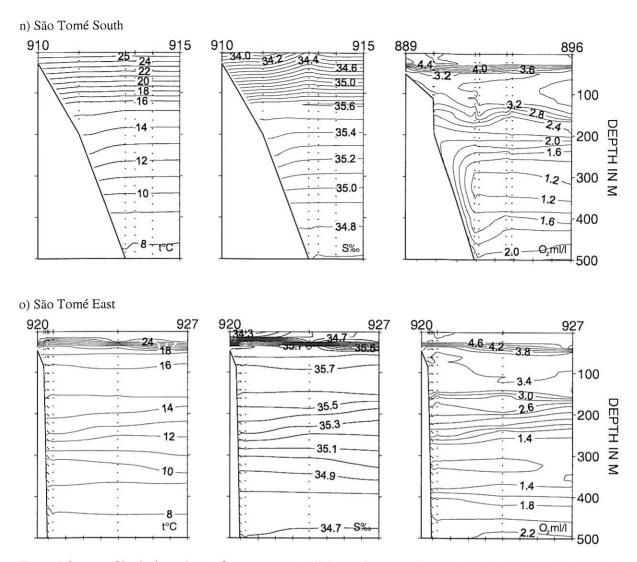


Figure 3.3 Vertical sections of temperature, salinity and oxygen in Nigeria, at a) Lagos, b) Lekki, c) Escravos River, d) Middleton River, e) Brass River, f) Bonny River and g) Calabar River, Cameroon at, h) kribi and i) Campo River, and São Tomé and Principe at j) Principe North k) Principe South l) São Tomé North o) São Tomé North.

CHAPTER 4 RESULTS OF THE ACOUSTIC SURVEY

The distribution area of main groups of pelagic fish in the region, i.e. sardinellas, PEL 1 (Clupeids) and PEL 2 (mainly carangids), are depicted in the following figures using the integrator values from the BEI echo-integration system recorded with the ES38B, 38 kHz transducer connected to the EK500. The acoustic densities (in m²/NM²) are illustrated by a scale normally used on acoustic surveys with "Dr. Fridtjof Nansen".

4.1 Nigeria

The hydro acoustic survey of Nigeria covered the shelf and slope systematically to 200 m bottom depth during the day, and continued offshore of this at night in a less systematic manner. The shelf was surveyed during the day only, and only bottom trawl were used for species identification. Generally low to medium acoustic densities where found over most of the shelf and only plankton was found in the water column from the shelf break and further offshore. The bottom channel was scrutinized continuously to 500 m bottom depth, but with only few fish targets seen offshore from the shelf break. Clear fish targets where however seen at several occasions between 700 and 1200 m (at night), but no bottom trawls where carried out at these depths to verify the targets.

Clupeids

Only few sardinellas were recorded along the coast, mainly in shallow waters. *Sardinella maderensis* dominated the catches while some *S. aurita* were found in deeper waters. No separate biomass estimate was calculated for sardinellas. Length frequencies from the bottom trawl catches can be found in Annex II.

Ilisha africana was taken in some bottom trawl hauls on the shallow part of the shelf. A few low-density schools were allocated to the PEL 1 group, but no estimate of abundance was made.

PEL 2 (carangids, scombrids, barracudas and hairtail)

The species category PEL 2 consisted of carangidae, trichiuridae and sphyraenidae, and scombridae. Chloroscombrus chrysurus dominated by weight in the trawl catches followed by Selene dorsalis, Sphyraena guachancho, Trichiurus lepturus, Decapterus punctatus and Scomberomorus tritor.

Chloroscombrus chrysurus dominated inshore above the thermocline to depths of 50 m, while Selene dorsalis had a slightly deeper distribution and where present in trawl catches to 100 m

depth. Outside of this only *Trichiurus lepturus* where present among the pelagic species. Length frequencies of the species can be found in Annex II.

Schools of PEL 2 species, mainly of low density, were found along the whole coastline Figure 4.1. 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 193 000 tonnes.

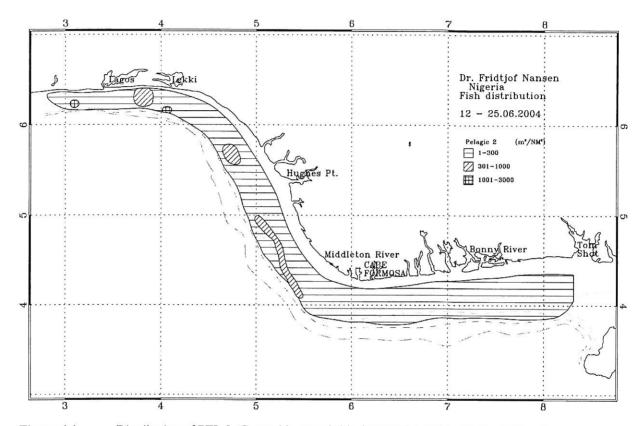


Figure 4.1 Distribution of PEL 2 (Carangids, scombrids, barracudas and hairtail) off Nigeria.

4.2 Equatorial Guinea

The hydro acoustic survey off Equatorial Guinea was interrupted, and no separate biomass estimates where made for this area. No pelagic fish where observed from the trawl stations in the region, but all were deeper than 50 m and no pelagic hauls where made.

4.3 Cameroon

The hydro acoustic survey of Cameroon covered the coast from the border to Equatorial Guinea to 20 m bottom depth. These borders therefore limit the distributions and abundance of pelagic fish. Both sardinella and other clupeids were together with carangids and associated species (PEL 2) found at the inner limit of the survey, with distributions continuing inshore into shallow waters. PEL 2 were also found to extend out of the survey area in to the territorial waters of Equatorial Guinea.

Clupeids

Sardinella maderensis was found in three areas along the coast between 20 and 50 m bottom depth, Figure 4.3. The distribution continued inshore of the survey area in shallow waters. The total biomass in Cameroon was estimated to be 11 000 tonnes. 90% of the biomass was < 24 cm. The numbers in millions are shown in Figure 4.2. The figure shows that the majority of the fish were juveniles <10 cm. It may seem like the inner shelf of Cameroon is a nursery area of sardinella. The area is characterized by relatively large salinity and temperature gradients. Besides the juvenile fish, 3 other cohorts are visible in Figure 4.2 with modal peaks of 12, 19 and 22 cm.

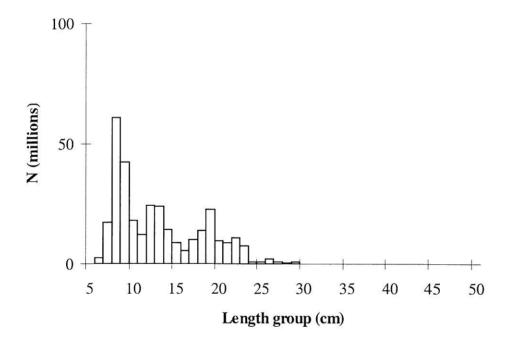


Figure 4.2 The numbers in millions of Sardinella maderensis found on the Cameroonian shelf

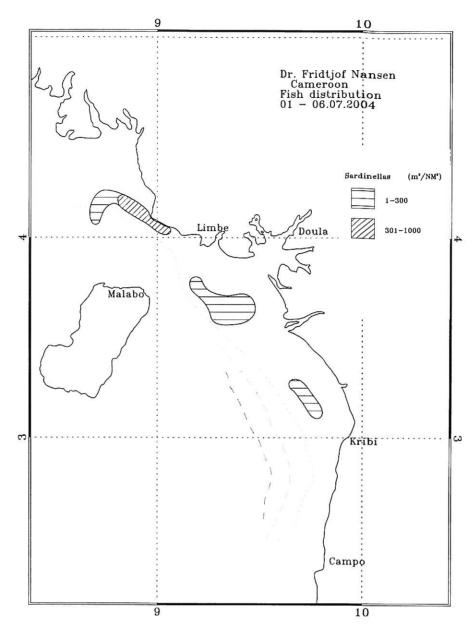


Figure 4.3 Distribution of Sardinella maderensis off Cameroon.

The pelagic group, PEL 1 consisted mainly of *Ilisha africana*, Figure 4.4. This species were generally found in the same areas as the Sardinella, between 20 and 50 m depth, with the highest concentrations in the area outside Douala. The total biomass of *Ilisha africana* was 2 000 tonnes. The size range was 5-20 cm with an average length of 12. 7 cm.

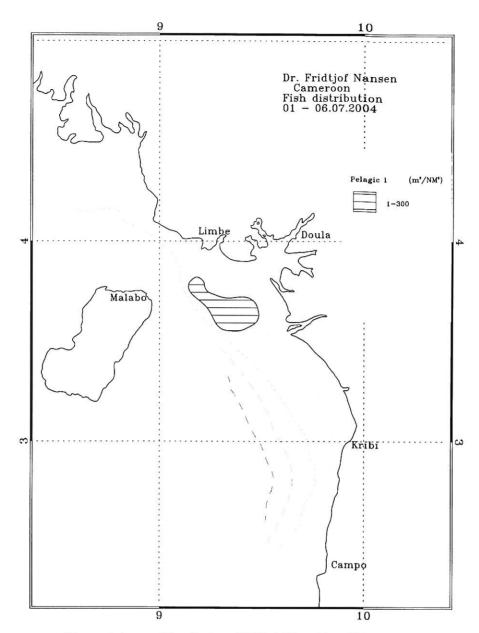


Figure 4.4 Distribution of PEL 1 (Clupeids) off Cameroon

The Pelagic group PEL 2, consisting of carangids, scombrids, barracudas and hairtail. The distribution of these species were almost continues in Cameroon, but with a small break in distribution around the river mouth of Wouri near Douala 4.5. The main distribution extended from inside of the survey area to approximately 50 m depth. The main species in order of abundance in the catches were *Selene dorsalis*, *Trichiurus lepturus*, *Sphyraena guachancho*, *Chloroscombrus chrysurus* and *Scomberomorus tritor*. 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 14 000 tonnes.

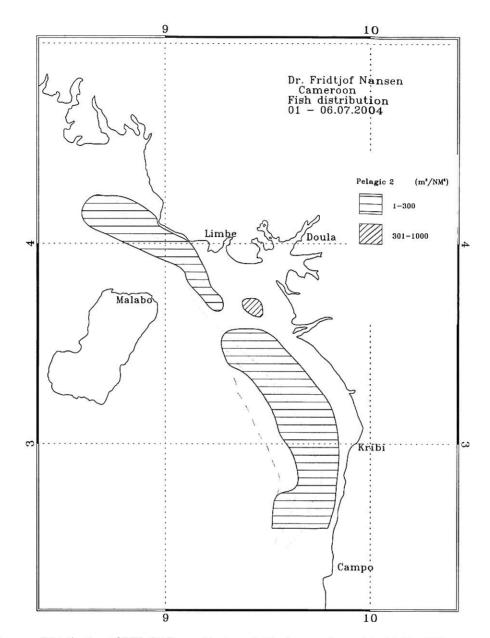


Figure 4.5 Distribution of PEL 2 (Carangids, scombrids, barracudas and hairtail) off Cameroon.

4.4 São Tomé and Principe

The hydroacoustic survey of São Tomé and Principe revealed little pelagic fish. No estimate of abundance was therefore made for these areas. However, there were consistent acoustic recordings of demersal fish over the whole shelf area, also over untrawlable grounds, which support the findings from the trawl survey that the narrow shelf had relatively high abundance of demersal fish.

4.5 Review of results

No previous pelagic surveys are available for comparisons in the region. Since this survey was the first pelagic hydroacoustic survey covering the region, no comparisons with previous surveys where made. Some general features observed during this survey are commented below.

Pelagic fish were present over large parts of the region. The main densities of pelagic fish where found inshore of 50 m bottom depth, extending inshore into <20 m depth (inshore of the survey area). Oil platforms limited the survey area inshore in Nigeria while this was not a problem in the rest of the survey area.

Most pelagic hauls at night were taken as blind hauls as relatively few schools were seen on the echo sounder during nighttime. This was partly due to a dispersed distribution and partly due to high abundance of plankton that made acoustic detection and separation difficult. During daytime it was sometimes difficult to catch schools of pelagic fish with the trawls. Sardinellas and carangids dominated on the inner shelf, while carangids, scombrids and barracudas were more widely distributed over the entire shelf.

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. 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, but will never include the species listed.

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 200 m was included, divided into 0-30 m, 31-50 m 51-100 m and 101-200 m. Mean densities of the main demersal species by depth strata, occurrence and catch distributions are shown in Annex IV.

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
MILL A CONTROL OF THE CONTROL		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 Nigeria

A total of 74 swept-area trawl hauls were made on the Nigerian shelf. Several trawl hauls where aborted early at depths >100 m due to muddy bottom. However because this is a first attempt to map the fish distributions of Nigeria these bottoms trawls where included in the analyses if the trawl stayed more than 10 min on the bottom. Table 5.2 a, b and c show catch rates by main groups for the inner (0-50 m), mid (51-100 m) and outer shelf and slope (101-250 m) shelf, respectively. Catch rates in general where low with average catches around 185 kg/h on the inner shelf, 193 kg on the mid shelf and 435 kg on the outer shelf.

The pelagic group contributed 64 % of the total catch and an average catch of 119 kg/h on the inner shelf, < 50 m depth, while the demersal group accounted for 19 % of the catch. The catch composition changed at the mid shelf between 50-100 m depth. Demersal and pelagic species contributed 27 and 28% or 52 and 54 kg/h respectively while cephalopods accounted for 13 % of the total catch. The demersal group contributed 24%, or 103 kg/h on the outer shelf and slope between 100-150 m, note one station at 250 m while the 'other' group where dominant with 60% of the catch. The main part of the catch in this group consisted of *Ariomma bondi*, which where the second most common specie, after *Chloroscombrus chrysurus*.

Shrimps, and especially the introduced *Penaeus monodon* together with *Penaeus notialis* and *Penaeus kerathurus* are important commercial and highly valuable species in Nigeria. The catches of these species where all inside of 50 m depth, with increasing concentrations inside of 30 m.

The cephalopods, and especially *Sepia officinalis hierredda* were present at all depths but most dominant on the outer shelf between 50-100 m with catch rates around 25 kg/h.

Sharks and rays where also present across the shelf but more dominant on the outer shelf.

The length frequencies of all main species together with the main length – weight parameters are shown in Annex II and III.

Table 5.2 Nigeria. 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 (101-250).

a) Inner shelf, 0-50 m

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ST.NO.	DEP.	Demersal	Pelagic	Shrimps	Cephalopod	Sharks and rays	Other	Total
543	38	16.0	40.5	3.0	1.3	0.0	28.8	89.6
544	23	16.8	24.1	10.5	0.0	0.0	39.0	90.3
545	25	19.8	61.7	0.4	1.5	0.0	51.1	134.4
546	38	49.1	74.5	1.7	2.2	0.9	33.3	161.7
549	41	94.1	1 325.5	3.1	82.2	0.0	124.4	1 629.3
550	30	14.2	29.9	1.4	1.5	0.0	21.3	68.4
554	25	0.9	21.5	0.0	0.9	0.0	9.5	32.9
555	19	23.4	79.5	7.8	1.5	0.0	31.6	143.9
556	37	13.9	82.9	3.0	3.1	0.0	43.1	146.0
558	42	26.9	29.9	2.4	10.2	0.0	20.9	90.4
559	25	50.3	1 150.4	0.6	0.0	0.0	18.9	1 220.3
560	25	53.9	160.3	8.4	5.9	0.0	41.0	269.5
561	44	21.4	30.5	0.7	2.2	0.0	4.7	59.5
565	39	102.9	27.3	1.9	10.8	0.0	33.0	175.9
566	28	50.0	209.8	0.5	0.5	0.0	9.0	269.7
571	47	110.1	1.1	2.6	38.8	0.0	8.7	161.3
572	26	10.7	155.0	2.5	3.1	0.0	14.5	185.8
573	41	37.6	20.0	18.1	11.6	0.0	34.3	121.7
577	42	40.5	45.9	4.1	3.3	0.0	6.3	100.1
578	40	74.5	52.8	0.4	2.7	0.0	5.8	136.2
584	30	17.9	19.5	0.9	0.0	0.0	25.2	63.5
585	33	2.6	31.1	0.0	1.5	0.0	21.3	56.6
590	36	4.9	24.7	0.0	8.2	0.0	17.5	55.4
591	25	15.8	103.9	0.5	1.4	4.3	8.1	134.0
592	22	112.0	89.4	0.3	1.0	3.2	26.8	232.6
593	39	33.7	16.3	0.0	1.1	0.0	12.4	63.5
596	35	3.7	38.1	0.0	3.0	0.0	8.7	53.4
597	30	23.4	90.6	0.1	1.2	0.0	6.0	121.4
598	48	4.7	0.8	0.1	21.6	4.7	2.8	34.7
602	40	6.3	25.0	0.0	2.0	0.0	2.7	36.0
603	41	31.9	40.3	0.3	2.2	0.0	2.1	76.9
607	41	4.2	0.3	0.5	7.2	0.0	4.9	17.0
611	34	8.3	44.0	0.2	0.5	0.0	15.7	68.7
612	23	9.7	44.5	0.3	1.7	0.0	42.0	98.2
613	47	79.1	61.4	8.7	3.3	0.0	15.3	167.8
616	41	48.1	26.5	0.7	2.2	0.0	13.7	91.2
MEAN	34	34.3	118.9	2.4	6.7	0.4	22.3	184.9
% Catch		18.5	64.3	1.3	3.6	0.2	12.1	100.0
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b) Mid shelf, 51-100 m

/								
ST.NO.	DEP.	Demersal	Pelagic	Shrimps	Cephalopod	Sharks and rays	Other	Total
542	65	74.8	194.1	0.2	28.2	12.9	102.9	413.1
547	55	187.9	746.3	3.7	13.8	0.0	112.1	1 063.8
548	67	78.2	43.8	8.5	68.7	0.0	35.9	235.0
553	77	161.2	15.1	0.0	48.0	8.2	81.2	313.7
557 ¹	98	40.5	4.5	0.5	51.9	0.0	117.3	214.8
562	86	51.0	33.2	0.9	13.1	9.5	119.0	226.7
564	62	240.8	223.5	2.8	29.4	5.4	54.4	556.3
567	71	15.4	2.0	1.5	41.4	16.9	64.1	141.2
570	82	4.3	0.2	0.5	17.0	9.2	51.4	82.6
574	61	45.7	0.8	2.0	20.7	8.1	51.3	128.6
576	69	22.4	0.2	0.5	26.9	0.0	30.6	80.5
579	62	7.3	4.4	1.8	4.4	7.7	19.4	45.1
580	90	47.1	0.0	0.0	29.3	6.7	108.2	191.3
582	66	28.0	10.7	0.3	15.1	4.3	11.3	69.7
586	58	5.8	25.8	0.0	4.4	9.1	18.8	63.9
587	92	51.1	4.6	1.0	45.7	4.6	60.4	167.3
589	66	8.5	4.4	0.0	39.0	11.4	16.1	79.3
595	64	9.7	0.6	0.1	38.9	0.0	37.9	87.2
599	81	3.0	2.7	0.0	18.1	27.6	28.0	79.4
601	77	10.9	1.5	1.1	20.2	8.0	29.4	71.0
604	65	33.2	3.6	1.0	10.4	0.0	10.6	58.8
606	69	24.9	8.8	0.1	5.5	0.0	21.7	61.1
608	90	8.4	6.5	0.3	17.9	4.6	79.7	117.4
614	65	101.4	1.4	0.7	6.9	2.7	69.1	182.3
615	83	44.7	4.3	0.0	1.4	0.0	48.9	99.3
MEAN	73	52.3	53.7	1.1	24.7	6.3	55.2	193.2
% Catch		27.0	27.8	0.6	12.8	3.2	28.6	100.0
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^{1.} Trawl time <10 min. Not included in swept area analyses.

c) Outer shelf and slope, 101-250 m

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ST.NO.	DEP.	Demersal	Pelagic	Shrimps	Cephalopod	Sharks and rays	Other	Total
551	111	766.0	27.1	0.0	15.8	3.5	135.5	947.9
552^{2}	251	66.3	0.0	86.9	30.7	0.0	996.1	1 180.0
563	112	76.4	3.3	2.3	17.9	0.0	223.9	323.8
568	107	21.8	3.8	0.0	283.3	86.4	344.9	740.2
569 ¹	152	34.0	16.8	1.6	57.2	0.0	395.7	505.3
575	106	76.4	0.0	0.0	21.7	4.3	204.6	307.0
581 ¹	142	48.2	1.6	1.0	41.5	0.0	201.5	293.8
588 ¹	119	94.8	2.1	0.0	70.6	43.7	273.9	485.1
594	149	6.2	3.4	0.2	4.4	6.0	198.5	218.7
600	136	10.3	0.6	0.2	7.3	18.6	90.5	127.5
605	126	48.6	8.2	0.0	7.2	0.0	43.2	107.2
609	135	15.6	0.8	0.0	9.3	3.2	82.6	111.5
610 ¹	135	74.4	0.3	0.4	23.2	0.0	213.0	311.3
MEAN	114	103.0	5.2	7.1	45.4	12.8	261.8	435.3
% Catch	Mileson selections de la consecución d	23.7	1.2	1.6	10.4	2.9	60.1	100.0

^{1.} Trawl time <10 min. Not included in swept area analyses. 2. >200 m. Not included in swept area analyses

Table 5.3 a and b show the catch rates of the main pelagic families caught in the bottom trawl. The dominant species at the inner shelf were carangids dominated by *Chloroscombrus chrysurus* and *Selene dorsalis*, with average catch rate of about 78 kg/h, constituting 42% of the total catch. Barracudas, mainly *Sphyraena guachancho*, were second and contributed about 9% to the total, while hairtails (*Trichiurus lepturus*) were less abundant and contributed 6%. The clupeid species that dominates the shallow water pelagic ecosystems in large parts of western Africa were also less common on the inner shelf of Nigeria. Those that occurred most frequently were *Sardinella maderensis* and *Ilisha africana*. In total these species contributed 4% of the total catch.

The total catch rate of pelagic species was lower at the mid shelf than at the coast. Carangids were most abundant, and contributed 44 kg/h to the total catch, or 23%. Selene dorsalis had its highest abundance at these depths while Chloroscombrus chrysurus were not seen at these depths at all. In addition to S. dorsalis, Decapterus punctatus were the second most abundant carangid at these depths. Barracudas, clupeids and hairtails were all present at these depths, but in small quantities. Scombrids were only present in one station.

Table 5.3 Nigeria. 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

ST.NO.	DEP.	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
543	38	0.6	12.4	0.9	0.8	25.8	49.1	89.6
544	23	3.4	6.4	0.0	7.9	6.5	66.2	90.3
545	25	30.9	15.2	0.3	13.7	1.7	72.7	134.4
546	38	12.3	25.0	2.4	16.1	18.8	87.2	161.7
549	41	29.6	1 035.8	7.8	80.6	171.6	303.8	1 629.3
550	30	6.6	7.0	2.7	6.8	6.9	38.4	68.4
554	25	0.6	11.5	5.8	0.0	3.6	11.3	32.9
555	19	5.1	17.0	7.7	47.3	2.5	64.3	143.9
556	37	12.6	27.4	6.1	18.9	18.0	63.1	146.0
558	42	0.5	18.7	4.3	1.6	4.7	60.4	90.4
559	25	24.8	910.2	15.6	57.0	142.8	69.9	1 220.3
560	25	9.3	93.8	12.9	3.2	41.1	109.2	269.5
561	44	7.2	11.4	0.8	0.2	10.9	29.0	59.5
565	39	0.1	18.4	2.1	0.2	6.6	148.6	175.9
566	28	2.8	136.4	1.4	0.1	69.2	60.0	269.7
571	47	0.0	0.1	0.0	0.4	0.5	160.2	161.3
572	26	25.9	53.4	11.3	57.9	6.4	30.8	185.8
573	41	0.3	4.4	0.0	3.4	11.9	101.6	121.7
577	42	1.3	15.5	0.0	24.7	4.4	54.2	100.1
578	40	0.6	38.4	9.5	2.0	2.3	83.4	136.2
584	30	0.8	5.7	6.4	3.4	3.1	44.0	63.5
585	33	0.0	16.1	4.7	0.0	10.3	25.4	56.6
590	36	0.0	16.2	3.1	0.0	5.5	30.6	55.4
591	25	3.4	37.6	6.1	55.0	1.7	30.2	134.0
592	22	69.3	7.1	7.2	3.8	2.0	143.2	232.6
593	39	1.0	2.1	1.2	0.2	11.8	47.2	63.5
596	35	1.7	36.4	0.0	0.0	0.0	15.4	53.4
597	30	1.6	84.6	0.2	0.0	4.1	30.8	121.4
598	48	0.0	0.8	0.0	0.0	0.0	33.9	34.7
602	40	0.9	16.5	7.5	0.0	0.0	11.0	36.0
603	41	0.7	38.1	0.6	0.0	0.9	36.5	76.9
607	41	0.0	0.3	0.0	0.0	0.0	16.8	17.0
611	34	5.1	9.4	17.3	1.6	10.7	24.7	68.7
612	23	1.3	23.1	14.1	3.6	2.4	53.7	98.2
613	47	0.1	58.1	0.0	1.5	1.6	106.4	167.8
616	41	1.6	3.8	0.0	9.5	11.7	64.7	91.2
MEAN	36	7.3	78.2	4.5	11.7	17.3	66.1	184.9
% Catch		3.9	42.3	2.4	6.3	9.3	35.7	100.0

b) Mid shelf, 51-100 m

ST.NO.	DEP.	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
542	65	40.1	148.2	0.0	0.0	5.8	219.0	413.1
547	55	3.6	671.9	6.8	24.8	39.3	317.5	1 063.8
548	67	0.0	0.2	0.0	38.3	5.4	191.2	235.0
553	77	0.0	0.0	0.0	0.0	15.1	298.6	313.7
557	98	0.0	0.0	0.0	2.0	2.6	210.3	214.8
562	86	27.2	0.0	0.0	1.8	4.1	193.5	226.7
564	62	0.0	211.8	0.0	0.0	11.7	332.8	556.3
567	71	0.0	1.0	0.0	0.3	0.6	139.2	141.2
570	82	0.0	0.0	0.0	0.2	0.0	82.4	82.6
574	61	0.0	0.6	0.0	0.0	0.3	127.8	128.6
576	69	0.0	0.0	0.0	0.0	0.2	80.3	80.5
579	62	0.0	3.7	0.0	0.8	0.0	40.7	45.1
580	90	0.0	0.0	0.0	0.0	0.0	191.3	191.3
582	66	0.0	10.7	0.0	0.0	0.0	59.0	69.7
586	58	0.0	23.4	0.0	0.0	2.4	38.1	63.9
587	92	0.0	1.3	0.0	3.3	0.0	162.7	167.3
589	66	0.2	4.0	0.0	0.1	0.0	74.9	79.3
595	64	0.0	0.6	0.0	0.0	0.0	86.6	87.2
599	81	0.0	0.0	0.0	2.7	0.0	76.7	79.4
601	77	0.0	0.0	0.0	1.5	0.0	69.5	71.0
604	65	0.0	3.0	0.0	0.6	0.0	55.2	58.8
606	69	0.0	0.9	0.0	7.9	0.0	52.3	61.1
608	90	1.9	1.4	0.0	1.5	1.8	110.9	117.4
614	65	0.4	0.1	0.0	0.0	1.0	180.8	182.3
615	83	0.5	3.8	0.0	0.0	0.0	95.0	99.3
MEAN	72.8	3.0	43.5	0.3	3.4	3.6	139.5	193.2
% Catch		1.5	22.5	0.1	1.8	1.9	72.2	

Very few pelagic species were present at the outer shelf and slope, no clupeids, carangids or scombrids were present at these depths except at one station, st. 551, where some *Sardinella aurita* and *Scomberomorus tritor* probably were caught in the net on the way up. *Trichiurus lepturus* was present at some stations, but catch rates were low, 3.1 kg/h. The table is not shown. A striking feature is the absence of *Trachurus trecae* which otherwise is abundant on the outer shelf between Angola to Mauritania.

Table 5.4 Nigeria. 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

ST.NO.	DEP.	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
543	38	0.0	0.0	0.1	2.8	13.1	73.6	89.6
544	23	0.0	3.0	0.0	5.3	8.5	73.6	90.3
545	25	3.3	0.0	0.0	10.9	5.6	114.7	134.4
546	38	0.0	0.0	0.0	19.4	28.6	113.8	161.7
549	41	0.0	0.0	0.0	34.3	59.8	1 535.1	1 629.3
550	30	0.0	0.0	0.0	7.6	6.3	54.5	68.4
554	25	0.0	0.0	0.0	0.5	0.0	32.4	32.9
555	19	0.0	0.0	0.0	2.0	21.4	120.5	143.9
556	37	0.0	0.0	0.4	9.9	3.7	132.1	146.0
558	42	4.3	0.0	1.2	21.4	0.0	63.5	90.4
559	25	0.0	0.0	0.0	33.8	16.5	1 169.9	1 220.3
560	25	0.0	0.0	0.0	0.3	53.6	215.6	269.5
561	44	5.5	0.0	0.0	15.6	0.2	38.1	59.5
565	39	0.0	0.0	0.2	102.6	0.1	73.0	175.9
566	28	0.0	0.0	0.0	49.4	0.6	219.7	269.7
571	47	0.0	0.0	0.3	109.8	0.0	51.2	161.3
572	26	0.0	0.0	0.0	2.0	8.7	175.1	185.8
573	41	0.0	0.0	0.5	30.2	7.0	84.0	121.7
577	42	0.0	0.0	0.3	36.1	3.5	60.3	100.1
578	40	0.0	0.0	0.0	74.5	0.0	61.7	136.2
584	30	0.0	0.0	0.2	13.9	3.7	45.6	63.5
585	33	2.5	0.0	0.0	0.1	0.0	53.9	56.6
590	36	1.4	0.0	0.0	3.4	0.0	50.5	55.4
591	25	0.0	0.0	0.0	4.5	12.6	118.2	135.2
592	22	0.0	0.0	3.3	0.8	107.8	120.7	232.6
593	39	0.0	0.0	0.0	33.5	0.2	29.9	63.5
596	35	2.5	0.0	1.3	0.0	0.0	49.7	53.4
597	30	1.4	0.0	0.0	22.0	0.0	98.0	121.4
598	48	1.8	0.0	1.1	1.8	0.0	30.0	34.7
602	40	0.5	0.0	0.0	5.8	0.0	29.7	36.0
603	41	0.0	0.0	0.5	31.4	0.0	45.0	76.9
607	41	0.0	0.0	0.0	4.1	0.0	12.9	17.0
611	34	0.0	0.0	0.3	7.8	0.2	60.4	68.7
612	23	0.0	0.0	0.0	9.0	0.7	88.5	98.2
613	47	0.0	0.0	1.5	72.0	5.6	88.7	167.8
616	41	0.2	0.0	0.0	41.0	7.0	43.1	91.2
MEAN	34.4	0.7	0.1	0.3	22.8	10.4	150.8	185.0
% Catch		0.4	0.0	0.2	12.3	5.6	81.5	100.0

Catch rates of the commercially most important demersal fish groups on the shelf are presented in Table 5.4 a, b and c. The catch rates were in general low on the inner shelf. Seabreams, snappers and groupers were only present in very low numbers. These groups together contributed only 0.6% of the total catch in this area. Grunts, mainly *Brachydeuterus auritus*, but also some *Pomadasys jubelini* gave average catches of 23 kg/h, or 12.3% of the total catches in the area, while croakers, Croakers (10,4 kg/h, or 5.6% of the total) were the second most important group, with *Pseudotolithus senegalensis* and *Pseudotolithus typus* as the most common species.

b) Mid shelf, 51-100 m

b) Mid shel	1, 51 10	O III						
ST.NO.	DEP.	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
542	65	50.5	0.0	7.4	15.5	0.0	339.7	413.1
547	55	0.0	0.0	1.2	181.2	4.6	876.8	1 063.8
548	67	14.7	0.0	14.2	47.6	1.0	157.6	235.0
553	77	134.1	0.0	12.2	4.3	0.0	163.1	313.7
557	98	37.9	0.0	1.7	0.0	0.0	175.2	214.8
562	86	12.9	0.0	0.5	0.8	34.1	178.4	226.7
564	62	4.0	0.0	19.8	212.5	4.5	315.5	556.3
567	71	1.6	0.0	3.8	2.1	7.2	126.5	141.2
570	82	3.0	0.0	0.5	0.0	0.8	78.3	82.6
574	61	0.0	0.0	4.3	39.4	2.1	82.9	128.6
576	69	0.3	0.0	3.7	17.8	0.5	58.1	80.5
579	62	0.0	0.0	0.9	6.4	0.0	37.8	45.1
580	90	8.0	0.0	36.4	0.0	2.6	144.3	191.3
582	66	0.7	0.0	0.4	26.9	0.0	41.6	69.7
586	58	0.8	0.0	0.7	4.2	0.0	58.2	63.9
587	92	16.3	0.0	28.9	0.0	0.5	121.7	167.3
589	66	5.8	0.0	2.3	0.1	0.0	71.1	79.3
595	64	6.4	0.0	3.3	0.0	0.0	77.4	87.2
599	81	1.7	0.0	0.8	0.0	0.5	76.4	79.4
601	77	5.8	0.0	0.5	0.0	4.5	60.3	71.0
604	65	0.0	0.0	1.0	30.0	2.0	25.7	58.8
606	69	0.0	0.0	0.6	22.0	2.3	36.2	61.1
608	90	5.9	0.0	1.2	0.0	0.5	109.8	117.4
614	65	0.7	0.0	2.3	98.0	0.0	81.2	182.3
615	83	42.9	0.0	0.0	0.0	0.0	56.4	99.3
MEAN	72.8	14.2	0.0	6.0	28.4	2.7	142.0	193.2
% Catch		7.3	0.0	3.1	14.7	1.4	73.5	100.0

Grunts, and especially *Brachydeuterus auritus* was abundant on the mid shelf, and together with the less abundant *Pomadasys jubelini*, this group gave 28.4 kg/h, or 14.7% of the total

catch, with increasing catches in deeper waters. The second most important demersal group on the mid shelf was the seabreams, mainly *Dentex congoensis*, *D. angolensis* and some few *Boops boops*, who together had average catches of 14.2 kg/h, or 7.3% of the total catch. Less abundant, but the third most important group was the groupers with average catches of 6 kg/h or 3.1% of the total. Croakers gave low catches, 1.4% of the total while no snappers were found.

On the outer shelf and shelf break, seabreams dominated the important demersal species with a relative contribution of 14 % and an average catch rate of 61 kg/h. *Dentex congoensis* and *D. angolensis* were also at these depths the most important species while other commonly occurring species like *Pagellus bellottii* and *D. canariensis* were rear in the catches. However, with only 12 trawls deeper than 100 m, one big catch (603 kg/h) of seabreams close to Lagos increased the average considerably. Croakers, 17,7 kg/h, or 4.1% of the total catch constituted the second most important group, The main specie in this group, at depths was *Pentheroscion mbizi*. Groupers contributed 0.9% to the total catch, while grunts and snappers were only caught in low numbers. The most abundant off all demersal species at the outer shelf and slope was *Ariomma bondi* who gave average catch rates of 110 kg/h but is not considered a commercial species.

c) Outer shelf and slope, 100-250 m

ST.NO.	DEP.	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
551	111	603.2	0.0	5.1	0.0	0.0	339.6	947.9
552	251	12.6	0.0	31.6	0.0	14.3	1121.5	1180.0
563	112	10.0	0.0	0.0	0.0	63.2	250.6	323.8
568	107	19.6	0.0	0.0	0.0	2.2	718.4	740.2
569	152	12.0	0.0	0.0	0.0	15.6	477.7	505.3
575	106	29.3	0.0	16.1	0.0	28.8	232.8	307.0
581	142	15.4	0.0	0.0	0.0	3.1	275.3	293.8
588	119	57.7	0.0	0.0	0.0	7.0	420.4	485.1
594	149	3.4	0.0	0.0	1.0	1.8	212.5	218.7
600	136	5.6	0.0	0.2	0.0	3.6	118.1	127.5
605	126	3.5	0.0	0.0	0.0	44.8	58.8	107.2
609	135	5.3	0.0	0.0	0.0	8.0	98.2	111.5
610	135	21.1	0.0	0.6	0.0	37.6	252.1	311.3
MEAN	137.0	61.4	0.0	4.1	0.1	17.7	352.0	435.3
% Catch		14.1	0.0	0.9	0.0	4.1	80.9	100.0

5.2 Equatorial Guinea

Only seven trawl stations where conducted in Equatorial Guinea. All trawl stations where made on the north side of Bioco Island. Few stations where made in shallow waters because of the very steep shelf around the island. The catch rates where relatively good for the area, with higher catch rates in the deeper stations, Table 5.5. The species that dominated where the same as those on the deeper stations in Nigeria, *Ariomma bondi, Decapterus punctatus, Boops boops* and *Dentex congoensis. Hypoclydonia bella* and *Parasudis fraser-bruenneri* dominated on the deep station. No separate biomass estimate was calculated for the area.

Table 5.5 Equatorial Guinea. Catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the shelf and slope shelf

ST.NO.	DEP.	Demersal	Pelagic	Shrimps	Cephalopod	Sharks and rays	Other	Total
617	59	100.7	2.6	1.5	3.3	0.0	15.2	123.4
618	82	165.0	9.7	0.0	13.1	8.0	78.0	273.8
619	83	2.78	7.7	0.0	2.7	3.7	30.3	47.2
620	77	22.5	0.7	0.0	3.4	8.7	20.3	55.7
621	102	84.7	175.3	0.0	17.1	24.7	723.4	1 025.3
622	321	0.0	0.0	2.6	41.2	10.5	798.4	852.7
623	120	31.2	0.0	0.1	8.2	21.3	18.7	79.4
MEAN	121	58.1	28.0	0.6	12.7	11.0	240.6	351.1
% Catch		16.6	8.0	0.2	3.6	3.1	68.5	100.0

5.3 Cameroon

A total of 42 swept-area trawl hauls were made on the Nigerian shelf. The shelf was mainly even, with mud and sandy substrate, and suited for bottom trawling except in the southern parts, around Campo, were corrals and hard bottom made bottom trawling difficult in some localities. The shelf edge was harder and rocky, with a steep shelf break at 150 in the south. The deep waters >500 m in the southern part of Cameroon was uneven and untrawlable.

Figure 5.6 a, b and c shows catch rates by main groups for the inner (0-50 m), mid (51-100 m) and outer shelf and slope (101-250 m) respectively. Catch rates where low in general. The catches from 0-50 m depth were dominated by demersal species. The mean catch rates were 173 kg/h or 45% of the total catch in this region. However, one station, st. 627, of 2 300 kg increased the mean considerably. The catches of pelagic species was on average 82 kg/h or 22% of the total while sharks and rays, shrimp and cephalopods contributed only marginally to the total catch in this depth region, with 0.1%, 6.8% and 0.6% respectively. The group of other species had a mean catch rate of 99 kg/h or 25% of the total.

The average catch rate declined from 383 kg/h at 0-50 m depth to 72 kg/h at 51-100 m depth, and the contribution of the different groups to the overall catch changed. The catch rate of demersal species was 21 kg/h or 29% of the total, pelagic species had an average catch rate of 6 kg/h or 8% of the total. Shrimps contributed with average catches of 2.8 kg/h or 3.9%, Cephalopods increased in abundance from the inner stations with average catches of 8.6 kg/h and 12% of the catches while sharks and rays had average catches of 1.1 kg/h.

The deeper stations were all collected in the southern parts of Cameroon, approximately from the latitude of the Sanaga river system (3°30'N). Several areas on the outer shelf and shelf break gave good acoustic registrations of demersal fish but were untrawlable because of rocky bottom. The average catch rates were skewed because of one station, st 657, were the total catch was 5400 kg/h. the total catch on the other five stations varied between 31 and 317 kg/h. The group of demersal species contributed 8% to the total catch. Cephalopods contributed 3.1% while the group of other species contributed with 88% of the total catch in this region. The main species in this group was *Arionnma bondi*. Although the highly varying catches, this species was abundant on the outer shelf in the south.

Shrimps are important commercial species in the Gulf of Guinea region, and abundant on the inner shelf and the estuaries. The most dominant species in Cameroon were *Nematopalaemon hastatus* with catches of 35 kg/h between 0-30 m depth. This estuarine prawn was especially abundant in some catches in the Wouri river estuary. Other abundant shrimps in the estuarine and innermost part of the shelf (0-30 m) were *Parapenaeopsis atlantica*, 1.5 kg/h, and *Penaeus monodon*, 0.45 kg/h. In slightly deeper waters between 30 and 50 m depth *Penaeus notialis* became more abundant with average catches of 2.7 kg/h, while *Parapenaeus longirostris* dominated at depths deeper than 50 m with catches of 1.7 kg/h.

Squids are also important in the fishery. Two species dominated in Cameroon. *Sepia officinalis hierredda* was found over the entire shelf while *Illex coindetii* were found at depths deeper than 50 m.

Table 5.6 Cameroon. 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 (101-250).

a) Inner shelf, 0-50 m

DEP.	Demersal	Pelagic	Shrimps (Cephalopod	Sharks and rays	Other	Total
22	62.3	62.7	53.2	0.4	0.0	155.6	334.2
46	2 311.3	321.7	6.1	0.0	0.0	43.7	2 682.7
29	118.8	94.4	11.1	0.2	0.0	101.8	326.4
42	153.8	18.8	0.6	0.7	0.0	12.1	186.0
30	82.6	163.6	106.1	0.5	0.0	29.9	382.6
25	87.9	140.3	82.8	1.0	1.0	81.0	394.0
35	95.5	208.9	17.4	9.2	0.0	7.9	338.9
26	56.2	291.5	8.6	1.1	4.2	41.3	402.9
19	26.8	98.3	1.7	1.0	0.0	34.3	162.1
24	171.7	77.9	235.1	2.3	0.0	44.0	531.1
44	0.5	9.8	0.1	1.9	0.0	708.4	720.7
27	17.8	33.1	0.0	1.1	4.9	11.6	68.4
23	21.8	36.6	0.0	0.3	0.0	36.1	94.8
33	8.1	12.2	0.0	0.9	0.0	6.5	27.7
28	15.5	31.7	0.0	1.9	0.0	14.0	63.0
24	1.8	18.3	0.0	0.1	0.0	4.3	24.5
50	5.3	5.5	0.0	1.4	0.0	604.2	616.6
22	81.9	3.0	0.0	14.3	0.0	28.8	128.0
23	114.1	12.8	0.0	2.1	0.0	5.1	134.0
43	27.8	5.9	0.1	3.5	0.0	11.6	48.9
30.8	173.1	82.4	26.2	2.2	0.5	99.1	383.4
	45.1	21.5	6.8	0.6	0.1	25.8	100.0
	22 46 29 42 30 25 35 26 19 24 44 27 23 33 28 24 50 22 23 43	22 62.3 46 2 311.3 29 118.8 42 153.8 30 82.6 25 87.9 35 95.5 26 56.2 19 26.8 24 171.7 44 0.5 27 17.8 23 21.8 33 8.1 28 15.5 24 1.8 50 5.3 22 81.9 23 114.1 43 27.8 30.8 173.1	22 62.3 62.7 46 2 311.3 321.7 29 118.8 94.4 42 153.8 18.8 30 82.6 163.6 25 87.9 140.3 35 95.5 208.9 26 56.2 291.5 19 26.8 98.3 24 171.7 77.9 44 0.5 9.8 27 17.8 33.1 23 21.8 36.6 33 8.1 12.2 28 15.5 31.7 24 1.8 18.3 50 5.3 5.5 22 81.9 3.0 23 114.1 12.8 43 27.8 5.9 30.8 173.1 82.4	22 62.3 62.7 53.2 46 2 311.3 321.7 6.1 29 118.8 94.4 11.1 42 153.8 18.8 0.6 30 82.6 163.6 106.1 25 87.9 140.3 82.8 35 95.5 208.9 17.4 26 56.2 291.5 8.6 19 26.8 98.3 1.7 24 171.7 77.9 235.1 44 0.5 9.8 0.1 27 17.8 33.1 0.0 23 21.8 36.6 0.0 33 8.1 12.2 0.0 28 15.5 31.7 0.0 24 1.8 18.3 0.0 24 1.8 18.3 0.0 24 1.8 18.3 0.0 22 81.9 3.0 0.0 23 114.1 12.8 0.0 23 114.1 12.8 0.0	22 62.3 62.7 53.2 0.4 46 2 311.3 321.7 6.1 0.0 29 118.8 94.4 11.1 0.2 42 153.8 18.8 0.6 0.7 30 82.6 163.6 106.1 0.5 25 87.9 140.3 82.8 1.0 35 95.5 208.9 17.4 9.2 26 56.2 291.5 8.6 1.1 19 26.8 98.3 1.7 1.0 24 171.7 77.9 235.1 2.3 44 0.5 9.8 0.1 1.9 27 17.8 33.1 0.0 1.1 23 21.8 36.6 0.0 0.3 33 8.1 12.2 0.0 0.9 28 15.5 31.7 0.0 1.9 24 1.8 18.3 0.0 0.1 50	22 62.3 62.7 53.2 0.4 0.0 46 2 311.3 321.7 6.1 0.0 0.0 29 118.8 94.4 11.1 0.2 0.0 42 153.8 18.8 0.6 0.7 0.0 30 82.6 163.6 106.1 0.5 0.0 25 87.9 140.3 82.8 1.0 1.0 35 95.5 208.9 17.4 9.2 0.0 26 56.2 291.5 8.6 1.1 4.2 19 26.8 98.3 1.7 1.0 0.0 24 171.7 77.9 235.1 2.3 0.0 44 0.5 9.8 0.1 1.9 0.0 27 17.8 33.1 0.0 1.1 4.9 23 21.8 36.6 0.0 0.3 0.0 24 1.8 18.3 0.0 0.1 0.0	22 62.3 62.7 53.2 0.4 0.0 155.6 46 2 311.3 321.7 6.1 0.0 0.0 43.7 29 118.8 94.4 11.1 0.2 0.0 101.8 42 153.8 18.8 0.6 0.7 0.0 12.1 30 82.6 163.6 106.1 0.5 0.0 29.9 25 87.9 140.3 82.8 1.0 1.0 81.0 35 95.5 208.9 17.4 9.2 0.0 7.9 26 56.2 291.5 8.6 1.1 4.2 41.3 19 26.8 98.3 1.7 1.0 0.0 34.3 24 171.7 77.9 235.1 2.3 0.0 44.0 44 0.5 9.8 0.1 1.9 0.0 708.4 27 17.8 33.1 0.0 1.1 4.9 11.6

b) Mid shelf, 51-100 m

ST.NO.	DEP.	Demersal	Pelagic	Shrimps C	ephalopod	Sharks and rays	Other	Total
625	58	25.8	4.6	15.0	2.8	0.0	69.1	117.3
626	61	16.8	0.5	1.0	4.2	1.0	11.6	35.1
630	61	75.9	6.9	4.0	3.5	0.0	39.1	129.3
633	56	12.6	4.0	7.6	5.5	0.0	30.2	59.9
644	77	17.9	0.3	0.0	9.1	7.0	5.9	40.1
648	52	2.5	2.5	0.1	3.3	0.0	59.5	67.9
651	88	29.3	0.5	0.0	14.5	0.0	26.8	71.1
655	82	8.5	0.2	0.0	3.5	1.3	69.9	83.4
658	79	0.7	0.0	0.1	16.8	1.1	7.2	25.9
663	67	4.6	13.6	0.5	11.5	0.0	4.7	34.9
MEAN	68.1	21.0	5.7	2.8	8.6	1.1	32.6	71.8
% Catch		29.2	8.0	3.9	12.0	1.5	45.4	100.0

c) Outer shelf and slope, 101-250 m

ST.NO.	DEP.	Demersal	Pelagic	Shrimps C	Cephalopod	Sharks and rays	Other	Total
643	135	5.2	0.0	0.1	0.3	0.0	75.5	81.1
650	128	170.2	0.0	0.0	94.5	11.3	41.7	317.6
656	103	133.8	8.1	0.2	10.0	19.2	75.9	247.2
657	140	183.4	0.0	0.0	66.4	0.7	5 170.8	5 421.3
661	220	0.6	0.0	1.9	4.2	5.4	18.7	30.9
662	106	17.5	0.0	0.1	23.0	6.0	195.5	242.1
MEAN	138.7	85.1	1.4	0.4	33.1	7.1	929.7	1 056.7
% Catch		8.1	0.1	0.0	3.1	0.7	88.0	100.0

The catches of the different pelagic groups in the bottom trawl survey off Cameroon is described in Table 5.7. Most species had higher catch rates in the northern part of Cameroon, and in the Campo River estuary. Carangids dominated on the inner stations and comprised 8.5% of the total, and a mean catch rate of 32.6 kg/h in this area. Clupeids had a mean catch rate of 18.3 kg/h while hairtails, barracudas and scombrids had 17,5, 10.6 and 3.3 kg/h respectively. The dominating carangids in this depth region were *Selene dorsalis* and *Chloroscombrus chrysurus*, with a somewhat deeper distribution of *Selene dorsalis*.

Very few pelagic species were found on the mid and outer shelf and shelf break. Carangids had catch rates of 5.1 kg/h and 1.4 kg/h at 51-100 m depth and 101-250 m depth respectively. Catches of all other pelagic species at these depths were insignificant. The carangid that dominated below 50 m depth was *Decapterus punctatus* who was found on 8 stations, other species like *Hemicaranx bicolour*, *Selar crumenophthalmus* and *Caranx senegallus* were caught infrequently.

Table 5.7 Cameroon. 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)

a) Inner shelf, 0-50 m

ST.NO.	DEP.	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
624	22	27.8	18.7	0.3	15.8	0.0	271.5	334.2
627	46	0.0	314.6	0.0	0.5	6.6	2 361.1	2 682.7
628	29	35.2	5.6	6.4	39.4	7.9	231.9	326.4
629	42	4.2	7.8	0.0	0.3	6.6	167.2	186.0
634	30	68.9	3.0	4.3	83.2	4.2	219.0	382.6
635	25	54.5	18.6	0.0	61.0	6.2	253.7	394.0
636	35	4.9	41.6	2.4	82.0	78.0	130.0	338.9
637	26	103.9	123.7	2.1	24.6	37.1	111.5	402.9
638	19	25.6	41.3	2.5	4.9	24.0	63.8	162.1
639	24	28.2	15.2	0.0	30.2	4.4	453.1	531.1
642	44	0.5	9.3	0.0	0.0	0.0	710.9	720.7
645	27	8.0	5.8	5.2	8.1	6.0	35.4	68.4
646	23	2.1	8.3	5.2	0.7	20.3	58.3	94.8
647	33	0.1	10.7	0.0	0.1	1.3	15.5	27.7
652	28	2.1	5.0	16.6	0.3	7.7	31.3	63.0
653	24	0.1	8.4	9.6	0.0	0.2	6.2	24.5
654	50	0.0	1.3	4.0	0.0	0.2	611.0	616.6
659	22	0.0	3.0	0.0	0.0	0.0	125.0	128.0
660	23	0.0	3.9	7.3	0.0	1.6	121.2	134.0
664	43	0.0	5.9	0.0	0.0	0.0	42.9	48.9
MEAN	30.8	18.3	32.6	3.3	17.5	10.6	301.0	383.4
% Catch		4.8	8.5	0.9	4.6	2.8	78.5	100.0

b) Mid shelf, 51-100 m

ST.NO.	DEP.	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
625	58	0.1	4.1	0.0	0.4	0.0	112.8	117.3
626	61	0.1	0.0	0.0	0.4	0.0	34.5	35.1
630	61	0.1	5.7	0.0	0.0	1.1	122.5	129.3
633	56	0.3	1.9	0.0	0.0	1.8	55.9	59.9
644	77	0.0	0.3	0.0	0.0	0.0	39.8	40.1
648	52	0.0	0.1	0.0	0.0	2.4	65.4	67.9
651	88	0.0	0.5	0.0	0.0	0.0	70.6	71.1
655	82	0.0	0.2	0.0	0.0	0.0	83.3	83.4
658	79	0.0	0.0	0.0	0.0	0.0	25.9	25.9
663	67	0.0	13.6	0.0	0.0	0.0	21.3	34.9
MEAN	68.1	0.1	5.1	0.0	0.1	0.5	66.0	71.8
% Catch		0.1	7.1	0.0	0.1	0.7	92.0	100.0

Catch rates of the commercially most important demersal fish groups in Cameroon are presented in Table 5.8 a, b and c. *Brachydeuterus auritus* was the most dominant of any single species on the inner shelf, this grunt had a catch rate of 135 kg/h, or 35% of the total catch, at depths between 0-50 m. Croakers, especially *Pseudotolithus elongates* and *Pseudotolithus typus* were also abundant with catch rates of 26.6 kg/h, or 7% of the catch. Seabreams, snappers and groupers were less abundant with 2.5, 7.6 and 0.7 kg/h.

The seabreams dominated on the midshelf with catch rates of 8.1 kg/h or 11% of the total catch. The dominant species of this group at these depths were *Dentex congoensis* and *D. angolensis*. The second most important group was the grunts with 10% of the total catch. *Brachydeuterus auritus* was still dominant at these depths. Groupers contributed 8% of the total catch. The dominant species here was *Epinephelus aeneus*. Catches of croakers were insignificant, while no snappers were found on these depths.

On the other shelf and shelf break seabreams were, with average catches of 74 kg\h or 7% of the total catch, the only dominant group of the important commercial species. Groupers had insignificant catches while no catches were made of snappers, grunts and croakers. The dominant species of seabreams, *Dentex congoensis* and *D. angolensis*, were the same as between 50-100 m. The group of other species contributed 92.5% of the total catch. This group mainly consisted of *Ariomma bondi*, a presently non-commercial species that were abundant on the shelf break.

Table 5.8 Cameroon. 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

	-								
	ST.NO.	DEP.	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
	624	22	0.0	0.0	0.0	16.8	45.5	271.9	334.2
	627	46	0.0	0.0	2.0	2 309.3	0.0	371.4	2 682.7
	628	29	0.0	0.0	0.0	2.3	116.5	207.5	326.4
	629	42	0.0	0.0	0.6	152.9	0.3	32.2	186.0
	634	30	0.0	0.0	0.0	5.9	76.4	300.4	382.6
	635	25	0.0	0.4	0.0	13.4	73.9	306.2	394.0
	636	35	0.0	0.0	2.0	92.0	1.0	243.9	338.9
	637	26	0.0	0.0	3.1	36.6	16.6	346.7	402.9
	638	19	0.0	0.0	0.0	11.4	15.4	135.3	162.1
	639	24	0.0	0.0	0.0	11.7	159.7	359.7	531.1
	642	44	0.0	0.0	0.4	0.1	0.0	720.2	720.7
	645	27	0.0	0.0	0.0	2.2	15.4	50.8	68.4
	646	23	0.0	1.1	1.3	8.4	11.0	73.0	94.8
	647	33	6.6	0.0	1.4	0.1	0.0	19.6	27.7
	652	28	0.0	0.0	2.1	12.9	0.5	47.6	63.0
	653	24	0.0	0.0	1.5	0.3	0.0	22.7	24.5
	654	50	0.2	0.0	0.0	5.1	0.0	611.2	616.6
	659	22	0.0	79.8	0.5	0.0	0.0	47.7	128.0
	660	23	42.2	69.6	0.0	0.0	0.0	22.2	134.0
	664	43	0.5	0.0	0.0	27.4	0.0	21.0	48.9
8	MEAN	30.8	2.5	7.6	0.7	135.4	26.6	210.6	383.4
	% Catch		0.6	2.0	0.2	35.3	6.9	54.9	100.0

b) Mid shelf, 51-100 m

ST.NO.	DEP.	Seabreams	C	~				THE RESERVE OF THE PARTY OF THE
		ocao. oamb	Snappers	Groupers	Grunts	Croakers	Other	Total
625	58	0.5	0.0	5.3	19.9	0.0	91.6	117.3
626	61	1.9	0.0	10.0	3.9	0.9	18.3	35.1
630	61	10.5	0.0	25.8	38.3	0.0	54.7	129.3
633	56	3.3	0.0	2.5	5.5	0.0	48.6	59.9
644	77	16.5	0.0	0.9	0.0	0.4	22.2	40.1
648	52	1.1	0.0	0.7	0.7	0.0	65.4	67.9
651	88	29.2	0.0	0.1	0.0	0.0	41.8	71.1
655	82	8.5	0.0	0.0	0.0	0.0	74.9	83.4
658	79	0.7	0.0	0.0	0.0	0.0	25.2	25.9
663	67	4.6	0.0	0.0	0.0	0.0	30.3	34.9
MEAN	68.1	8.1	0.0	5.6	6.8	0.1	51.0	71.8
% Catch		11.3	0.0	7.9	9.5	0.2	71.1	100.0

C) c	Outer	shelf	and	slope.	101-250 r	n
-	, .	Outer	SHOTI	anu	STOPC,	101-2301	ı

ST.NO.	DEP.	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
643	135	5.2	0.0	0.0	0.0	0.0	75.9	81.1
650	128	170.2	0.0	0.0	0.0	0.0	147.4	317.6
656	103	91.7	0.0	9.8	0.0	0.0	145.6	247.2
657	140	158.8	0.0	24.6	0.0	0.0	5 237.9	5 421.3
661	220	0.4	0.0	0.0	0.0	0.0	30.4	30.9
662	106	17.5	0.0	0.0	0.0	0.0	224.6	242.1
MEAN	138.7	74.0	0.0	5.7	0.0	0.0	977.0	1 056.7
% Catch		7.0	0.0	0.5	0.0	0.0	92.5	100.0

5.4 São Tomé and Principe

São Tomé and Principe are volcanic islands generally characterized by narrow rocky shelves, and steep shelf breaks. Demersal fish were seen frequently on the echosounder on the shelf break, but the rough bottom made trawling difficult. The area, and especially the island of São Tomé were also characterized with abundant seabirds and dolphins. Predators like these were almost absent off the mainland of Nigeria and Cameroon during the survey. The analyses are done for each island separately.

Fishing lines were used in the surface to try to catch pelagic fish while steaming to Principe and between the islands. However this approach were not fruitful this time.

Principe

Demersal fish were seen frequently on the narrow shelf off Principe. Trawling was difficult because of the uneven bottom and trawling was mainly confined to the southern and eastern part of the island. Five bottom trawl station was conducted, one at 41 m depth, and the others between 50 and 100 m. The species composition was similar in all trawls, and catch rates on the five stations were relatively good,

Table 5.9. The most abundant species in order of mean abundance was Seabreams were the most important species in the total catches with 82 kg/h, and 55% of the total. The group consisted mainly of *Pagellus bellottii*, *Dentex congoensis* and *Pagrus caeruleostictus*. The flying gurnard, *Dactylopterus volitans*, was the second most important with catch rates of 44 kg/h or 30%. Squids were also important with *Sepia officinalis hierredda* accounting for 6 kg/h or 4%, while the red cornet fish, *Fistularia petimba*, accounted for 3% of the catches.

Table 5.9 The main groups and species caught around the island of Principe, catches in kg/h.

ST.NO.	DEP.	Seabreams	Flying gurnard	Red cornet fish	Squid Jo	hn dory	Other	Total
666	40	0.0	182.5	0.2	7.8	0.0	20.5	211.1
667	58	18.8	25.7	10.4	19.0	0.0	17.5	91.4
668	79	45.3	5.4	3.5	0.8	1.0	11.3	67.1
670	86	241.4	4.1	8.2	0.4	1.7	9.0	264.7
671	74	104.8	3.6	0.6	2.6	0.8	2.2	114.5
MEAN	67.4	82.1	44.3	4.6	6.1	0.7	12.1	149.7
% Catch		54.8	29.6	3.1	4.1	0.4	8.1	100.0

Four hook and line stations ("snik") with bait were also tried on untrawlable ground, No catch were made on these stations.

The biomass was calculated based on the four trawl stations from 50-100 m depth for the same depth stratum. No separate estimates were made for other strata.

São Tomé

Pelagic fish were seen only in small quantities on the echosounder but there were several observations of surface schools of tuna and flying fish on the surface. However, no samples were possible to obtain from these. A total of five swept area trawl stations were possible to carry out at São Tomé, one on the southwestern side, and the four others on the east coast. All trawl stations were between 50-100 m as the shelf generally was very steep and no trawl stations were possible deeper or shallower than this.

The catch rate was on average 226 kg/h. The seabreams dominated in the catches with average catch rates of 93 kg/h or 41% of the total catch. The most abundant seabreams were Pagellus bellottii, Pagrus caeruleostictus and Dentex congoensis. The snappers had average catch rates of 37 kg/h or 16% of the total catch. Lutjanus fulgens was the dominant species in this group and was the single most abundant off all species in the total catch. The groupers had average catches of 32 kg/h or 14% of the total catch. Paranthias furcifer and Epinephelus aeneus dominated the group. Only few grunts mainly Pomadasys c.f. olivaceum, and no croakers were caught in the bottom trawls in São Tomé. In the group of other species Dactylopterus volitans were dominant together with Fistularia petimba and. No shrimps were caught in the bottom trawls, and only small catches of the squid Sepia officinalis hierredda and Alloteuthis africana.

Table 5.10 São Tomé. Catch rates (kg/h) of main demersal species grouped by families in swept-area bottom-trawl hauls on the shelf (51-100 m)

ST.NO.	DEP.	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
673	73	25.3	0.0	0.0	0.0	0.0	13.0	38.3
674	71	12.4	0.0	2.2	0.2	0.0	19.1	33.9
675	55	281.7	184.6	132.0	23.7	0.0	107.5	729.5
676	54	139.0	0.0	6.9	0.0	0.0	123.0	268.9
677	77	6.9	0.0	17.6	0.0	0.0	35.4	59.9
MEAN	66.0	93.1	36.9	31.7	4.8	0.0	59.6	226.1
% Catch		41.2	16.3	14.0	2.1	0.0	26.4	100.0

5.5 Review of results

The survey was conducted in the middle of the rainy season, and the weather was generally overcast and calm, with occasional heavy rainfall associated with strong winds.

Nigeria and Cameroon

The survey area in Nigeria and Cameroon generally had a lack of seabirds and marine mammal predators, otherwise frequently observed along most of the West-African coast. Only a few terns and gulls where observed in the survey area. These observations where in line with generally low fish catches in the area, although oil platforms and pipelines hampered trawling in the most shallow and reportedly more productive parts of the Nigerian coast, mainly < 30 m depth. The bottom substrate although not systematically monitored consisted in most of the survey area of sand and silt and mud close to the coast, with gradually finer particles in deeper waters. Several areas were untrawlable especially deeper than 100 m depth.

Generally two different fish communities could be identified, the Carangidae and Clupeidae communities above the thermocline, and the Sparidae communities below the thermocline around 100 m depth and deeper.

The biomass of the major demersal groups is listed in Table 5.11 together with other important species groups from the area. In Nigeria, the most abundant species group was the Ariomma species. These are not caught for commercial purposes, but are abundant on the shelf from approximately 100 m depth. The total biomass of the two species was 14 000 tonnes. Seabreams, with a total biomass for all depth strata of 11 000 tonnes was the most abundant of the commercial species. The second most abundant group was the grunts, with a biomass of 11 000 tonnes. 9 000 tonnes of croakers were found while groupers and snappers

were less abundant. Swept area estimates were also produced for several species that are not truly demersal, and estimates using this method will therefore underestimate the biomass. These were Carangids, Barracuda and cephalopods. The biomass of these groups calculated by the swept area method gave 39 000, 7 000 and 11 000 tonnes respectively.

As for Nigeria, the most abundant species in Cameroon was *Ariomma bondi*. The biomass of the species was 14 000 tonnes. The grunts were the most abundant of the commercial species groups in Cameroon with a total biomass of 11 000 tonnes. The major part of this consisted of the *Brachydeuterus auritus*. The second most important group was the croakers with 2 600 tonnes. Seabreams had a biomass of 1 600 tonnes while the other commercial groups only had low abundance. The biomass of the Carangids, Barracuda and cephalopods were 3 000, 900 and 800 tonnes respectively.

São Tomé and Principe

The marine environment, habitat and demersal communities were different on the islands of Principe and São Tomé than on the main land. The islands had higher salinity and lower temperatures than along the coast of Nigeria and Cameroon. The bottom topography was very uneven and rocky, with only few places were it was possible to trawl. While the biomass estimate for Nigeria and Cameroon was calculated from 0-200 m depth, the biomass estimate for São Tomé and Principe was only calculated for the area between 50-100 m depth, this because no trawls were made in other depth strata. The species composition on Principe consisted mainly of Gurnards and Seabreams. No biomass estimate was calculated for the first group, while the biomass estimate for seabreams was estimated to be 1 500 tonnes. It was also estimated 100 tonnes of cephalopods and 24 tonnes of carangids. The most abundant species group on São Tomé was the seabreams with a biomass of 370 tonnes. The snappers were the second most important group with 137 tonnes, while the biomass of groupers was estimated to be 120 tonnes. The biomass of cephalopods was estimated to be 61 tonnes.

Table 5.11 Swept area biomass estimates for the main fish groups and Cephalopods encountered during the bottom trawl survey. Total for all depth strata, 0-200 m for Nigeria and Cameroon, 50-100 m for the islands of Principe and São Tomé. Values in tonnes

Group/species	Nigeria	Cameroon	Principe	São Tome	Equatorial
Group/species	Tylgeria	Cameroon	Timespe	Sao Tome	Guinea
Seabreams	11 481	1 616	1 496	370	-
Grunts	10 957	10 830	0	18	2.0
Croakers	8 857	2 616	0	0	-
Groupers	1 304	249	0	119	-
Snappers	83	350	0	137	**
Sharks	2 878	180	0	6	20
Rays	819	140	0	4	
Barracudas	7 387	925	0	0	-
Cephalopods	10 857	797	101	61	==
Ariomma	14 463	14 266	0	0	<u>=</u>
Carangids	39 253	3 103	24	20	-
Total for the groups	108 339	35 072	1 621	735	-

Annex I Records of fishing stations

DR. FRIDTJOF NANSEN DATE:12/ 6/04 GEAR T start stop duration TIME :08:01:56 08:18:41 17 (mi LOG :7940.01 7940.82 0.79 FDEPTH: 65 64 BDEPTH: 65 64 Towing dir: 80e Wire out	in) Purpose code Area code GearCond.com Validity cod	: 5 de: de:	611	SEART SEOP duration TIME :111:44:34 12:15:08 31 (; LOG :7959.83 7961.40 1.55 FDEPTH: 22 23 BDEPTH: 22 23	n min) Purpose code	: 5 e: e:
Sorted: 20 Kg Total catch			13.12	Sorted: 47 Kg Total cat	ch: 46.68 C	ATCH/HOUR: 90.35
SPECIES	CATCH/HOUR	% OF TOT. C	SAMP	SPECIES	CATCH/HOUR weight number	% OF TOT. C SAMP
Decapterus punctatus		212 35.67	2567	Polydactylus quadrifilis Galeoides decadactylus	18.39	6 20.35 86 11.70 2580
Pagellus bellottii Lepidotrigla cadmani	46.06 1	253 12.22 412 11.15	2568	Nematopalaemon hastatus Trichiurus lepturus	9.77 1396	
Sardinella aurita Cymbium pepo		288 9.70 39 4.34	2570	Sphyraena guachancho Pomadasys jubelini	6.46	46 7.15 2585 17 5.42 2579
Sepia officinalis hierredda Brachydeuterus auritus		244 3.89 947 3.76	2569	Selene dorsalis Pseudotolithus typus	3.79 2	34 4.19 2586 19 4.03 2576
Squatina oculata Alloteuthis africana	12.88 12.18 4	7 3.12 288 2.95		Ilisha africana Lutjanus fulgens	3.29 40	3.64 2584
Grammoplites gruveli Serranus accraensis	9.00	459 2.18 318 1.79		Pseudotolithus elongatus		4 3.30 70 3.11 2581
Chilomycterus spinosus mauret.	6.81	21 1.65		Portunus validus Elops lacerta	2.52	14 3.11 14 2.79
Priacanthus arenatus Sphyraena guachancho	5.82	794 1.50 176 1.41		Pseudotolithus senegalensis Caranx hippos		15 2.25 2578 12 2.10 2582
Dicologoglossa cuneata Syacium micrurum		88 0.98 512 0.73		Squilla mantis Drepane africana	1.22	6 1.35 29 1.14
Fistularia petimba Calappa pelii	2.29	14 0.55 18 0.51		Pentanemus quinquarius Chloroscombrus chrysurus	0.70	12 0.77 2577 37 0.77 2583
Pseudupeneus prayensis Brotula barbata	1.94	71 0.47 7 0.33		Parapenaeopsis atlantica Pisodonophis semicinctus	0.56 10	0.62 2 0.58
Goboloides sp Scorpaena normani	1.24	194 0.30 71 0.30		Paraconger notialis	0.39	2 0.43
Selar crumenophthalmus Saurida brasiliensis	0.88	18 0.21 124 0.13		Brachydeuterus aurītus Lagocephalus laevigatus	0.31	10 0.43 2 0.34
Sphoeroides marmoratus	0.35	35 0.08 18 0.04		Panulirus regius Penaeus kerathurus		2 0.21 12 0.19
HOLUTHUROIDEA Sicyonia galeata	0.18	53 0.04		Batrachoides liberiensis Scyllarides herklotsii	0.14	2 0.15 8 0.09
Total	413.13	100.00		Sardinella maderensis Trachinocephalus myops	0.06	4 0.07 2 0.04
				Penaeus notialis Monochirus hispidus	0.04	2 0.04 2 0.02
DATE:12/6/04 GEAR T start stop duration TIME:10:02:46 10:32:01 29 (mi LCG:7949.96 7951.34 1.37 FDEPTH: 38 38 BDEPTH: 38 38	TYPE: BT No:15 ! in) Purpose code Area code GearCond.com	Long E e: 3 :5		Total	90.32	99.93
Towing dir: 80¢ Wire out	Validity co: :: 140 m Speed:	de:				
	: 140 m Speed:	de: 30 kn*10	39.59	DR. FRIDTJOF NANSEN DATE:12/6/04 GEAR	PROJECT:IG TYPE: BT No:15 PO	PROJECT STATION: 545 DSITION: Lat N 619
Towing dir: 80¢ Wire out	catch/hour	de: 30 kn*10 CATCH/HOUR: 8	39.59 SAMP		TYPE: BT No:15 PC	DSITION:Lat N 619 Long E 305
Towing dir: 800 Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho	c: 140 m Speed: a: 43.30 c CATCH/HOUR weight numb 25.76	de: 30 kn*10 CATCH/HOUR: 8 % OF TOT. C ers 403 28.75	SAMP 2574	DATE:12/ 6/04 GEAR start stop duration	TYPE: BT No:15 PC n nin) Purpose code:	DSITION:Lat N 619 Long E 305 : 3
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES	c: 140 m Speed: a: 43.30 c CATCH/HOUR weight numb 25.76	de: 30 kn*10 CATCH/HOUR: 8 % OF TOT. C	SAMP	DATE:12/6/04 GEAR START SLOP CHURATION TIME :14:09:50 14:39:45 30 (m LOG :7977.71 7979.20 1.48 FDEPTH: 25 24	TYPE: BT No:15 PC nain) Purpose code: Area code GearCond.code Valldity code	DSITION: Lat N 619 Long E 305 : 3 : 5
Towing dir: 800 Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus	CATCH/HOUR weight numb- 25.76 19.24 8.71	de: 30 kn*10 CATCH/HOUR: 8 % OF TOT. C ers 403 28.75 352 21.48	SAMP 2574 2575	DATE:12/ 6/04 GEAR start stop duration TIME :14:09:50 14:39:45 30 (R LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 Towing dir: 270¢ Wire ou	TYPE: BT No:15 PC nin) Purpose code: Area code GearCond.code Valldity code it: 125 m Speed: 3	DSITION:Lat N 619 Long E 305 : 3 : 5 e: e: e:
Towing dir: 800 Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana	2: 140 m Speed: CATCH/HOUR weight numb 25.76 19.24 8.71 7.86 4.34 3.23	de: 30 kn*10 CATCH/HOUR; 8 % OF TOT. C ers 403 28.75 352 21.48 9.72 2180 8.77 21 4.84 31 3.61	SAMP 2574 2575 2572	DATE:12/6/04 GEAR START SLOP CHURATION TIME :14:09:50 14:39:45 30 (m LOG :7977.71 7979.20 1.48 FDEPTH: 25 24	TYPE: BT No:15 PC nin) Purpose code: Area code GearCond.code Valldity code it: 125 m Speed: 3	DSITION: Lat N 619 Long E 305 : 3 : 5
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis	CATCH/HOUR weight number 25.76 8.71 7.86 4.34	de: 30 kn*10 CATCH/HOUR: 8 FOF TOT. C ers 403 28.75 352 21.48 9.72 180 8.77 21 4.84 31 3.61 95 3.14 33 3.02	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 GEAR start stop duration TIME :14:09:50 14:39:45 30 (R LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 Towing dir: 270¢ Wire ou	TYPE: BT No:15 PC 1 ain) Purpose code: Area code GearCond.code valldity code it: 125 m Speed: 3 ch: 67.69 CATCH/HOUR	DSITION:Lat N 619 Long E 305 : 5 :: 5 :: 100 km*10 VTCH/HOUR: 135.38
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis	:: 140 m Speed: :: 43.30 (CATCH/HOUR weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11	de: 30 kn*10 CATCH/HOUR: 8 FTOT C Cers 403 28.75 352 21.48 48 9.72 180 8.77 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 GEAR start stop duration TIME :14:09:50 14:39:45 30 tr LCG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270e Wire or Sorted: 15 Kg Total catc	TYPE: BT No:15 PC ain) Purpose code: Area code GearCond.code Validity code tt: 125 m Speed: 3 ch: 67.69 CA CATCH/HOUR weight mumber 31.80 38	DSITION:Lat N 619 Long E 305 : 5 :: 5 :: 100 km*10 ***********************************
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus	c: 140 m Speed: c: 43.30 c CATCH/HOUR weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41	de: 30 kn*10 CATCH/HOUR: 8 V OF TOT. C Cers 403 28.75 352 21.48 48 9.72 180 8.77 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270¢ Wire of Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Ilisha africana Trichiurus lepturus	TYPE: BT No:15 PC ain) Purpose code: Area code GearCond.code Valldity code it: 125 m Speed: 3 ch: 67.69 CP CATCH/HOUR weight number 31.80 35 30.54 185 13.66 43	SSITION: Lat N 619 Long E 305 : 5 : 5 :: 5 :: 1 : 10 kn*10 ATCH/HOUR: 135.38 % OF TOT. C SAMP : 10 23.49 2592 : 22.56 2588 : 10 10.99 2590
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Scomberomorus tritor	:: 140 m Speed: a: 43.30 (CATCH/HOUR Weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41 1.24 1.03 0.93	de: 30 kn*10 CATCH/HOUR: 8 % OF TOT. C ers 403 28.75 352 21.48 48 9.72 180 8.77 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270¢ Wire of Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Ilisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus	TYPE: BT No:15 PC ain) Purpose code: Area code GearCond.code Validity code it: 125 m Speed: 3 ch: 67.69 CF CATCH/HOUR Weight number 31.80 35:3 30.54 18: 13.66 43 13.56 36 7.16 14	SSITION: Lat N 619 Long E 305 : 5 : 5 :: :: :: :: :: :: :: :: :: :: :: :: ::
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Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierreda Scomberomorus tritor Trichiurus lepturus Syacium micrurum Syacium micrurum Scyllarides herklotsii Selar crumenophthalmus Psettodes belcheri	CATCH/HOUR Weight numb 25.76 43.30 6 CATCH/HOUR Weight numb 25.76 49.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46	de: 30 kn*10 CATCH/HOUR: 8 FOF TOT. C ers 403 28.75 352 21.48 48 9.72 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 31 0.80 6.81 130 0.65	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 GEAR start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270e Wire of Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Tlisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudotolithus senegalensis Lagocephalus laevigatus Fomadasys jubelini	TYPE: BT No:15 PC ain) Purpose code: Area code GearCond.code Validity code it: 125 m Speed: 3 ch: 67.69 CA CATCH/HOUR weight mumber 31.80 35 30.54 185 13.66 42 13.56 36 7.16 14 4.96 4.40 3.80 3.70 1	SSITION: Lat N 619 Long E 305 3 5 5 5 5 1
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Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierreda Scomberomorus tritor Trichiurus lepturus Syacium macrurum Scyllarides herklotsii Selar crumenoghthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Chilomycterus spinosus mauret.	:: 140 m Speed: :: 43.30 (CATCH/HOUR Weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46 0.39	de: 30 kn*10 CATCH/HOUR: 8 V FTOT. C V C V S V V V V V V V V V V V V V V V	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270¢ Wire or Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Ilisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudottolithus senegalensis Lagocephalus laevigatus Pomadasys jubelini Pagrus caeruleostictus Drepane africana Panulirus regius Sphyraena guachancho	TYPE: BT No:15 PC ain) Purpose code: Area code GearCond.code Validity code it: 125 m Speed: 3 ch: 67.69 CF CATCH/HOUR Weight number 31.80 35:30.54 189 13.66 43 13.56 43 13.56 43 4.96 3 4.76 2 4.40 1 3.80 3.70 1 3.00 2.56 5 1.80 1	SSITION: Lat N 619 Long E 305 : 5 : 5 :: :: :: :: :: :: :: :: :: :: :: :: ::
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotclithus typus Chloroscombrus chrysurus Pseudotclithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Scomberomorus tritor Trichiurus lepturus Syacium micrurum Scyllarides herklotsii Selar crumenophthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Ilisha africana Caranx crysos Eneltis alexandrinus Decapterus punctatus	:: 140 m Speed: :: 43.30 (CATCH/HOUR Weight numb. 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46 0.39 0.35 0.35 0.35 0.31	de: 30 kn*10 CATCH/HOUR: 8 OF TOT. C ers 403 28.75 352 21.48 48 9.72 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 130 0.65 2 0.63 2 0.51 2 0.44 118 0.39 2 0.39 4 0.35 2 0.35	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 GEAR start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 FDEPTH: 25 24 Towing dir: 270¢ Wire on Sorted: 15 Kg Total cate SPECIES Calecides decadactylus Iliaha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudottolithus senegalensis Lagocephalus laevigatus Pomadasys jubelini Pagrus casruleostictus Drepane africana Panulirus regius Sphyraena guachancho Sepia officinalis hierredda Pteroscion peli	TYPE: BT No:15 PC ain) Purpose code: Area code GearCond.code Validity code it: 125 m Speed: 3 ch: 67.69 CF CATCH/HOUR weight number 31.80 35.30.54 189 13.66 43 13.56 43 13.56 43 14.96 3 4.76 2 4.40 1 3.80 3.70 3.70 3.00 2.56 5 1.80 1 1.66 1 1.46 1	SSITION: Lat N 619 Long E 305 : 5 :: 5 :: 5 :: 7
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotclithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Scembercmorus tritor Trichiurus lepturus Syacium micrurum Scyllarides herklotsii Selar crumenophthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Chilomycterus spinosus mauret. Alectis alexandrinus Decapterus punctatus Alloteuthis africana Parapenaeopsis aflantica	CATCH/HOUR weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46 0.39 0.35 0.35 0.31 0.31 0.27	de: 30 kn*10 CATCH/HOUR: 8 * OF TOT. C ers 403 28.75 352 21.48 48 9.72 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 31 0.86 31 0.86 31 0.80 31 0.80 31 0.80 32 0.51 2 0.41 38 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 2 0.39 3 0.35 3 0.35 3 0.35 5 0.35	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 GEAR start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270¢ Wire on Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Ilisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudotolithus senegalensis Lagocephalus laevigatus Pemadasys jubelini Pagrus caeruleosticus Drepane africana Panulirus regius Sphyraena guachancho Sepia officinalis hierredda Pteroscion peli Selene dorsalis Caranx hippos	TYPE: BT No:15 PC ann) Purpose code: Area code Area code Gearcond.code Validity code it: 125 m Speed: 3 ch: 67.69 CF CATCH/HOUR weight number 31.80 35 30.56 43 13.66 43 13.56 43 13.56 43 13.56 43 13.56 43 13.56 45 13.66 41 1.56 51 1.80 13.80 1.66 11.46 11 1.24 2 0.86 60 0.66 6	SSITION: Lat N 619 305 3 Long E 305 5 5 5: 6: 7: 8 OF TOT. C SAMP 8 OF TOT. C SAMP 800 23.49 2592 22.56 2588 10 10.09 2590 10.02 2591 16 5.29 2589 14 3.66 14 3.52 14 3.25 14 3.25 14 3.25 15 2.73 16 2.73 17 2.81 18 2.73 18 2.81 18
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Scamberomorus tritor Trichiurus lepturus Syacium macrurum Scyllarides herklotsis Selar crumenophthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Chilomycterus spinosus mauret. Alectis alexandruns Decapterus punctatus Alloteuthis africana Parapenaeopsis atlantica Grammoplites gruveli Sardinella maderensis	CATCH/HOUR weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46 0.39 0.35 0.31 0.31 0.39 0.27 0.27 0.25 0.25	de: 30 kn*10 CATCH/HOUR: 8 * OF TOT. C ers 403 28.75 352 21.48 48 9.72 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 31 0.80 31 0.80 31 0.80 31 0.80 32 0.51 2 0.41 38 0.39 2	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270¢ Wire on Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Ilisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudotolithus senegalensis Lagocephalus laevigatus Pomadamys jubelini Bagrus caeruleostictus Drepane africana Panulirus regius Sphyraena guachancho Sepia officinalis hierredda Pteroscion peli Selene dorsalis Caranx hippos Chaetodipterus goreensis Lepidotrigla cadmani	TYPE: BT No:15 PC ann) Purpose code: Area code Gearcond.code Validity code it: 125 m Speed: 3 ch: 67.69 CF CATCH/HOUR weight number 31.80 35 30.54 188 13.66 43 13.56 51 1.66 10.56 51 1.66 10.56 60.56 60.55 61	DSITION: Lat N 619 Long E 305 S 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotclithus typus Chloroscombrus chrysurus Pseudotclithus typus Chloroscombrus chrysurus Pseudotclithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Scamberomorus tritor Trichiurus lepturus Syacium micrurum Scyllarides herklotsii Selar crumenophthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Chilomycterus spinosus mauret. Alectis alexandrinus Decapterus punctatus Alloteuthis africana Parapenaeopsis atlantica Grammoplites gruveli Sardinella maderensis Epinephelus aeneus Lepidotrigla cadmani	:: 140 m Speed: :: 43.30 (CATCH/HOUR Weight numb. 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46 0.39 0.35 0.31 0.31 0.29 0.27 0.25 0.21 0.10 0.08	de: 30 kn*10 CATCH/HOUR: 8 OF TOT. C ers 403 28.75 352 21.48 48.9.72 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 32 0.63 31 0.80 32 0.63 32 0.35 32 0.39 32 0.39 32 0.39 32 0.39 32 0.30 32 0.30 32 0.30 32 0.30 32 0.30	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270e Wire or Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Ilisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudotolithus senegalensis Lagocephalus laevigatus Drepane africana Pendasys jubelini Pagrus caeruleostictus Drepane africana Panulirus regius Sphyraena guachancho Sepia officianalis hierredda Pteroscion peli Selene dorsalis Caranx hippos Chaetodipterus goreensis Lepidotrigla cadmani Sardinella maderensis Penaeus kerathurus	TYPE: BT No:15 PC ain) Purpose code: Area code GearCond.code Validity code tt: 125 m Speed: 3 ch: 67.69 Cr CATCH/HOUR weight number 31.80 35 30.54 185 13.66 42 13.56 7.16 14 4.96 3 4.76 2 4.40 1 3.80 3.70 1 3.00 2.56 5 1.80 1 66 1 1.24 2 0.86 6 0.56 0 0.56 0 0.50 1 0.36 3 0.28	DSITION: Lat N 619 Long E 305 S 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Scamberomorus tritor Trichiurus lepturus Syacium micrurum Scyllarides herklotsii Selar crumenophthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Chilomycterus spinosus mauret. Alloteuthis africana Parapenaeopsis atlantica Grammoplites gruveli Sardinella maderensis Epinephelus aeneus Lepidotrigla cadmani Scorpaena normani Monochirus hispidus	:: 140 m Speed: :: 43.30 (CATCH/HOUR weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46 0.39 0.35 0.31 0.31 0.31 0.29 0.27 0.25 0.21 0.10 0.08 0.06	de: 30 kn*10 CATCH/HOUR: 8 OF TOT. C ers 403 28.75 352 21.48 48 9.72 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 130 0.65 2 0.63 31 0.80 32 0.63 31 0.80 32 0.63 32 0.63 32 0.35 37 0.35 37 0.35 37 0.30 38 0.35 37 0.30 38 0.35 38 0	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 start stop duration TIME :14:09:50 14:39:45 30 tr LCG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270e Wire on Sorted: 15 kg Total cate SPECIES Galeoides decadactylus Tlisha africana Trichiurs lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudotolithus senegalensis Lagocephalus laevigatus Pomadamys jubelini Pagrus caeruleostictus Drepane africana Panulirus regius Sphyraena guachancho Sepia officinalis hierredda Pteroscion peli Selene dorsalis Caranx hippos Chaetodipterus goreensis Lepidotrigla cadmani Sardinella maderensis Penaeus kerathurus Cynoglossus canariensis Scomberomorus tritor	TYPE: BT No:15 PC ain) Purpose cde: Area code GearCond.code Validity code it: 125 m Speed: 3 ch: 67.69 CA CATCH/HOUR weight number 31.80 35 30.54 188 13.66 43 13.56 36 7.16 14 4.96 3 4.76 2 4.40 1 3.80 1.66 1 1.46 1 1.24 2 0.86 6 0.56 0 0.56 0 0.56 0 0.56 0 0.28 0 0.26 1	SSITION: Lat N 619 Long E 305 3 5 5 5 5 1
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Scamberomorus tritor Trichiurus lepturus Syacium macurum Scyllaridos herklotsii Selar crumenophthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Chilomycterus spinosus mauret. Alectis alexandrinus Decapterus punctatus Alloteuthis africana Parapenaeopsis atlantica Grammoplites gruveli Sardinella maderensis Epinephelus aeneus Lepidotrigla cadmani Scorpaena normani Monochrus hispidus Serranus accraensis Sepiella ornata	:: 140 m Speed: :: 43.30 G CATCH/HOUR weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46 0.39 0.35 0.35 0.31 0.31 0.31 0.31 0.29 0.27 0.25 0.21 0.10 0.08 0.06 0.06 0.06	de: 30 kn*10 CATCH/HOUR: 8 8 0F TOT. C ers 403 28.75 352 21.48 48 9.72 180 8.77 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 130 0.65 2 0.63 32 0.51 2 0.44 118 0.39 2 0.39 2 0.39 14 0.23 23 0.35 372 0.30 372 0.32 52 0.30 14 0.22 0.23 2 0.11 2 0.09 2 0.07 8 0.07 2 0.04 2 0.07 8	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 start stop duration TIME :14:09:50 14:39:45 30 (m LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270e Wire of Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Tlisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudotolithus senegalensis Lagocephalus laevigatus Pomadasys jubelini Pagrus caeruleostictus Drepane africana Panulirus regius Sphyraena guachancho Sepia officinalis hierredda Pteroscion peli Selene dorsalis Caranx hippos Chaetodipterus goreensis Lepidotrigla cadmani Sardinella maderensis Penaeus kerathurus Cynoglossus canariensis Scomberomorus tritor Pagellus bellotti Alectis alexandrinus	TYPE: BT No:15 PC Area code Area code GearCond.code Validity code it: 125 m Speed: 3 ch: 67.69 CF	SSITION: Lat N 619 Long E 305
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Socmberomorus tritor Trichiurus lepturus Syacium micrurum Scyllarides herklotsii Selar crumenophthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Chilomycterus spinosus mauret. Alectis alexandrinus Decapterus punctatus Alloteuthis africana Parapenaeopsis atlantica Crammoplites gruveli Sardinella maderensis Epinephelus aeneus Lepidotrigla cadmani Scorpaena normani Monochirus hispidus Serranus accraensis Sepiella ornata Sphoeroides marmoratus	:: 140 m Speed: :: 43.30	de: 30 kn*10 CATCH/HOUR: 8 OF TOT. C ers 403 28.75 352 21.48 48 9.72 180 8.77 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 130 0.65 2 0.63 2 0.63 2 0.51 2 0.44 118 0.39 2 0.30 2 0.11 2 0.02 2 0.02 2 0.07	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 GEAR start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 FDEPTH: 25 24 Towing dir: 270¢ Wire or Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Ilisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudottolithus senegalensis Lagocephalus laevigatus Pomadasys jubelini Pagrus caeruleostictus Drepane africana Panulirus regius Sphyraena guachancho Sepia officinalis hierredda Pteroscion peli Selene dorsalis Caranx hippos Chaetodipterus goveensis Lepidotrigla cadmani Sardinella maderensis Penaeus Kerathurus Cynoglossus canariensis Scomberomorus tritor Pagellus bellottii	TYPE: BT No:15 PC ain) Purpose code: Area code Gearcond.code Validity code it: 125 m Speed: 3 ch: 67.69 CF CATCH/HOUR weight number 31.80 38 30.54 185 13.66 43 13.56 43 13.56 43 13.56 49 13.80 37.16 14.96 3 4.76 2 4.40 1 3.80 3.70 3.00 2.56 1.80 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.46 1 1.24 2 0.86 6 0.50 0.50 1 0.26 0 0.26 1 0.26 1 0.26 1 0.26 1 0.26 1 0.26 1 0.26 1 0.14 1	SSITION: Lat N 619 Long E 305 : 5 : 5 : 5 : 5 : 5 : 5 : 5 : 5 : 5 :
Towing dir: 80s Wire out Sorted: Kg Total catch SPECIES Sphyraena guachancho Galeoides decadactylus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus typus Chloroscombrus chrysurus Pseudotolithus senegalensis Drepane africana Brachydeuterus auritus Penaeus notialis Portunus validus Selene dorsalis Caranx hippos Lagocephalus laevigatus Sepia officinalis hierredda Scamberomorus tritor Trichiurus lepturus Syacium macurum Scyllaridos herklotsii Selar crumenophthalmus Psettodes belcheri Chaetodipterus goreensis Ilisha africana Caranx crysos Chilomycterus spinosus mauret. Alectis alexandrinus Decapterus punctatus Alloteuthis africana Parapenaeopsis atlantica Grammoplites gruveli Sardinella maderensis Epinephelus aeneus Lepidotrigla cadmani Scorpaena normani Monochrus hispidus Serranus accraensis Sepiella ornata	:: 140 m Speed: :: 43.30 G CATCH/HOUR weight numb 25.76 19.24 8.71 7.86 4.34 3.23 2.81 2.71 2.11 1.63 1.41 1.24 1.03 0.93 0.77 0.72 0.58 0.56 0.46 0.39 0.35 0.35 0.31 0.31 0.31 0.31 0.29 0.27 0.25 0.21 0.10 0.08 0.06 0.06 0.06	de: 30 kn*10 CATCH/HOUR: 8 8 0F TOT. C ers 403 28.75 352 21.48 48 9.72 180 8.77 21 4.84 31 3.61 95 3.14 33 3.02 6 2.36 39 1.82 8 1.57 10 1.38 54 1.15 2 1.04 43 0.86 31 0.80 130 0.65 2 0.63 32 0.51 2 0.44 118 0.39 2 0.39 2 0.39 14 0.23 23 0.35 372 0.30 372 0.32 52 0.30 14 0.22 0.23 2 0.11 2 0.09 2 0.07 8 0.07 2 0.04 2 0.07 8	SAMP 2574 2575 2572 2571	DATE:12/ 6/04 GEAR start stop duration TIME :14:09:50 14:39:45 30 (r LOG :7977.71 7979.20 1.48 FDEPTH: 25 24 BDEPTH: 25 24 Towing dir: 270¢ Wire on Sorted: 15 Kg Total cate SPECIES Galeoides decadactylus Ilisha africana Trichiurus lepturus Chloroscombrus chrysurus Brachydeuterus auritus Portunus validus Albula vulpes Pseudottolithus senegalensis Lagocephalus laevigatus Pomadasys jubelini Pagrus caeruleosticus Drepane africana Panulirus regius Sphyraena guachancho Sepia officinalis hierredda Pteroscion peli Selene dorsalis Caranx hippos Chaetodipterus goreensis Lepidotrigla cadmani Sardinella maderensis Penaeus kerathurus Cynoglossus canariensis Scomberomorus tritor Pagellus bellottii Alectis alexandrinus Penaeus notialis	TYPE: BT No:15 PC ain) Purpose code: Area code GearCond.code Validity code it: 125 m Speed: 3 ch: 67.69 CF CATCH/HOUR weight number 31.80 30.54 189 13.66 43 13.56 43 13.56 43 13.56 49 13.80 30.54 189 13.66 40 1.80 30.54 189 13.66 40 1.40 1 1.80 1	SSITION: Lat N 619 Long E 305 : 5 : 5 :: 5 :: 10 km*10 ATCH/HOUR: 135.38 ** OF TOT. C SAMP SS 02 22.56 2588 :01 0.09 2590 :01 0.02 2591 :05 10.02 2591 :05 10.02 2591 :05 10.02 2591 :06 5.29 2589 :44 3.66 :44 3.52 :44 3.25 :44 3.25 :40 1.33 :00 1.23 :00 1.08 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.64 :00 0.69 :00

DR. FRIDTJOF NANSEN PROJECT: IG PROJECT STATION: 546

DATE: 12/6/04 GEAR TYPE: BT No:15 POSITION: Lat N 616

TIME: 15:50:37 16:20:21 30 (min) Purpose code: 3

LOG :7985:90 7987.55 1.67 Aéra code: 5

FDEPTH: 38 37 GearCond.code:
BDEPTH: 38 37 VALIdity code: 3

Towing dir: 90e Wire out: 160 m Speed: 30 km·10

Sorted: 30 Kg Total catch: 80.85 CATCH/HOUR: 161.70

SPECIES	CATCH	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Sphyraena guachancho	18.80	116	11.63	
Galecides decadactylus	18.06	86	11.17	
Pseudotolithus senegalensis	17.26	130	10.67	2597
Trichiurus lepturus	16.10	896	9.96	2595
Selene dorsalis	14.40	686	8.91	
Pomadasys jubelini	13.90	70	8.60	2596
Ilisha africana	12.10	730	7.48	
Pteroscion peli	11.30	246	6,99	2593
Chloroscombrus chrysurus	9.10	290	5.63	
Portunus validus	7.70	26	4.76	
Albula vulpes	6.86	30	4.24	
Brachydeuterus auritus	5.46	116	3.38	2594
Scomberomorus tritor	2.36	16	1.46	
Sepia officinalis hierredda	2.16	6	1.34	
Caranx hippos	1.50	10	0.93	
Arius latiscutatus	1.12	2	0,69	
Mustelus mustelus	0.90	6	0.56	
Penaeus kerathurus	C.BO	156	0.49	
Penaeus monodon	0.76	4	0.47	
Lagocephalus laevigatus	0.30	30	0.19	
Grammoplites gruveli	0.20	20	0.12	
Sardinella maderensis	0.16	16	0.10	
Penaeus notialis	0.16	10	0.10	
Brotula barbata	0.06	16	0.04	
'Spider crab'	0.06	6	0.04	
Cynoglossus cadenati	0.06	6	0.04	
Sphoeroides marmoratus	0.06	6	0.04	
Total	161.70		100.03	

DR. F	DR. FRIDTJOF NANSEN			PROJECT: IG			PROJECT STATION:			: NOI	547
DATE:	12/ 6/04		GEAF	TYPE:	BT I	No:15	POSI	TION:	Lat	N	614
	start	stop	duratio	m					Long	E	304
TIME	:17:12:51	17:42:35	30	min)	Purp	ose cod	e:	3			
LOG	:7993.61	7995.16	1.52		Area	code		5			
FDEPT	H: 55	54			Gear	Cond.co	de:				
BDEPT	H: 55	54			Valid	dity co	de:				
	Towing d	ir: 900	Wire o	ut: 19	5 m	Speed:	30	kn+10			

Sorted: 66 Kg Total catch: 531.90 CATCH/HOUR: 1063.80

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	666.40	2652	62.64	2598
Brachydeuterus auritus	120.02	13090	11.28	2599
Pomadasys jubelini	61.20	86	5.75	
Sphyraena guachancho	39.28	238	3.69	
Cymbium pepo	34.20	30	3.21	
Raja miraletus	24.82	186	2.33	
Trichiurus lepturus	24.80	1854	2.33	
Citharus linguatula	22.96	1004	2.16	
Sepia officinalis hierredda	13.60	154	1.28	
Cynoglossus canariensis	8.34	374	0.78	
Scomberomorus tritor	6.80	12	0.64	
Microchirus frechkopi	4.94	170	0.46	
Pteroscion peli	4.60	68	0.43	
Uranoscopus albesca	4.42	34	0.42	
Selene dorsalis, juveniles	4.26	1616	0.40	
Parapenaeus longirostris	3.74	816	0.35	
Ilisha africana	3.58	136	0.34	
Priacanthus arenatus	3.40	18	0.32	
Grammoplites gruveli	2.72	306	0.26	
Torpedo torpedo	1.48	2	0.14	
Dicologoglossa cuneata	1.20	18	0.11	
Saurida brasiliensis	1.20	374	0.11	
Aluterus heudelotii	1.20	18	0.11	
Serranus accraensis	1.20	68	0.11	
Uraspis secunda	1.20	2	0.11	
Scyllarides herklotsii	0.86	102	0.08	
Brotula barbata	0.86	18	0.08	
Sepiella crnata	0.18	52	0.02	
Squilla cadenati	0.18	18	0.02	
Gobius sp	0.18	34	0.02	
Total	1063.82		99,98	

		JOP NAI	ISEN		PROJECT: IG			PROJECT STATION:			: 548
DATE:				GE.	AR TYP	E: BT	No:15	POS:	ITION: Lat	: N	614
		start	stop	durat	ion				Lor	ng E	317
TIME	:09	:40:40	10:11:18	31	(min)	Purp	ose co	le:	3		
LOG		91.49		1.55			code				
FDEPT:	1:	66	68			Gear	Cond.co	ode:			
BDEPT	H:	66	68			Val:	dity co	ode:			
	To	wing di	r: 96¢	Wire	out:		Speed		kn*10		
Sor	ted:	69 Kg	J To	tal c	atch:	121	.44	CAT	CH/HOUR:	239	.05

SPECIES	CATCE	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	64.05	499	27.25	
Brachydeuterus auritus	47.61	1446	20.26	
Trichiurus lepturus	38.26	215	16.28	
Pagellus bellottii	13.01	197	5.53	2600
Lepidotrigla cadmani	12.14	314	5.16	
Epinephelus aeneus	11.61	17	4.94	
Parapenaeus longirostris	8.36	1138	3.56	
Sphyraena guachancho	5.40	52	2.30	
Pseudupeneus prayensis	4.99	75	2,12	
Citharus linguatula	4.76	383	2.03	
Priacanthus arenatus	4.76	854	2.03	
Uranoscopus albesca	4.47	17	1.90	
Octopus vulgaris	2.90	6	1.23	
Serranus accraensis	2.55	110	1.08	
Dentex angolensis	1.68	41	0.71	
Grammoplites gruveli	1.68	81	0.71	
Sepia juveniles	1.22	145	0.52	
Pentheroscion mbizi	0.99	12	0.42	
Brotula barbata	0.70	6	0.30	
Alloteuthis africana	0.52	134	0.22	
Venus verrucosa	0.46	12	0.20	
Syacium micrurum	0.41	58	0.17	
Chilomycterus spinosus mauret.	0.41	6	0.17	
Gobius sp	0.41	70	0.17	
Cymbium sp.	0.29	52	0.12	
Dicologoglossa cuneata	0.29	6	0.12	
Saurida brasiliensis	0.23	64	0.10	
Cymbium pepo	0.17	6	0.07	
Lepidotrigla carolae	0.17	23	0.07	
Parapandalus narval	0.12	87	0.05	
Decapterus punctatus	0.12	6	0.05	
Lophiodes kempi	0.12	6	0.05	
Squilla mantis	0.06	6	0.03	
Scyllarides herklotsii	0.06	12	0.03	
Selene dorsalis, juveniles	0.06	12	0.03	
Total	235.04		99.98	

			ANSEN		I	ROJECT: IG	P	ROJECT STA'	FION:	549
DATE:	13/ 6	6/04		0	EAR TYP	E: BT No:	15 POS	ITION:Lat	N	617
	2	start	stop	dura	tion			Long	E	316
TIME	:11:	:34:4	7 12:04	:31 30	(min)	Purpose	code:	3		
LOG	:810	01.87	8103.	41 1.5	2	Area co	ie :	5		
FDEPT	H:	41		41		GearCond	d.code:			
BDEPT	H:	41		41		Validity	code:			
	Tov	wing	dir: 9	Oφ Wir	e out:	150 m Sp	eed: 30	kn*10		
0	ted:	37			catch:	814.63	202	CH / HOUR :	1629	

SPECIES	CATCH	1/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	967.20	18252	59.36	2601
Sphyraena guachancho	171.60	1664	10.53	2604
Sepia sp.	82.16	156	5.04	
Trichiurus lepturus	80.60	3120	4.95	2605
Lepidochelys olivacea	59.00	2	3.62	
Caranx crysos	41.60	312	2.55	2602
Brachydeuterus auritus	34.32	1352	2.11	2603
Pseudotolithus senegalensis	33.80	572	2.07	2608
Ilisha africana	27.56	2010	1.69	2607
Pteroscion peli	26.00	2912	1.60	2606
Selene dorsalis	21.84	5356	1.34	2609
Priacanthus arenatus	16.12	104	0.99	
Cynoglessus browni	13.00	114	0.80	
Callinectes amnicola	11.44	676	0.70	
Scomberomorus tritor	7.80	52	0.48	
Grammoplites gruveli	6,76	416	0.41	
Scyllarides herklotsii	5.20	52	0.32	
Caranx hippos	5.20	52	0.32	
Antennarius sp.	4.68	312	0.29	
Parapenaeopsis atlantica	3.12	728	0.19	
Dicologoglossa cuneata	3.12	52	0.19	
Galecides decadactylus	2.60	156	0.16	
Sardinella maderensis	2.08	52	0.13	
Citharus linguatula	1.56	52	0.10	
Raja miraletus	0.90	2	0.06	
Total	1629.26		100.00	

100.01

32.74

DRF FRIDTJOF NANSEN PROJECT: IG PROJECT STATION: 550 DATE: 13 / 6 / 04 GEAR TYPE: BT No: 15 POSITION: Lat N 619	DR. FRIDTJOF NANSEN PROJECT:IG PROJECT STATION: 552 DATE:14/ 6/04 GEAR TYPE: BT No:15 POSITION:LA N 607 start stop duration Long E 347 TIME :06:33:17 07:03:06 30 (min) Purpose code: 3 LOG :8202.33 8203.75 1.40 Area code : 5 FDEPTH: 245 257 GearCond.code: TOWIng dir: 82e Wire out: 730 m Speed: 30 kn=10 Sorted: 27 kg Total catch: 589.98 CATCH/HOUR: 1179.96
	Sorted: 27 kg Total catch: 589.98 CATCH/HOUR: 1179.96
SPECIES CATCH/HOUR % OF TOT. C SAMP weight numbers	SPECIES CATCH/HOUR % OF TOT. C SAMP weight numbers
Galeoides decadactylus 11.60 208 16.96 2618 Sphyraena guachancho 6.88 66 10.06 2611	Zenion longipinnis 262.50 30660 22.25
Trichiurus lepturus 6.78 38 9.92 Brachydeuterus auritus 6.44 138 9.42 2619	Cubiceps sp. 182.70 12222 15.48 2625
Ilisha africana 5.72 888 8.37 2615 Chloroscombrus chrysurus 4.90 128 7.17 2617	Parapenaeus longirostris 86.94 12264 7.37 2626
Portunus validus 4.80 88 7.02	Xenolepidichthys sp. 56.70 4620 4.81 Antigonia capros 46.20 588 3.92
Scomberomorus tritor 2.70 18 3.95	Epinephelus haifensis 31.60 2 2.68 Illex coindetii 30.66 1470 2.60
Caranx hippos 2.06 14 3.01 2610 Albula vulpes 1.92 8 2.81	Pentheroscion mbizi 14.28 84 1.21 MACROURIDAE 12.60 420 1.07
Pteroscion peli 1.80 56 2.63 2616 Fenaeus monodon 1.38 10 2.02	Dentex angolensis 12.60 84 1.07 Synagrops microlepis 9.24 2772 0.78
Sepiella ornata 1.28 644 1.87 Pomadasys rogeri 1.14 8 1.67 2613	Zenopsis conchifer 7.80 6 0.66 Brotula barbata 7.78 8 0.66
Sardinella maderensis - Juv. 0.84 12 1.23 Drepane africana 0.66 26 0.97	Trigla lyra 7.14 84 0.61 Chlorophthalmus atlanticus 6.72 1260 0.57
Lagocephalus laevigatus 0.58 104 0.85 Uranoscopus polli 0.54 2 0.79	Dicologoglossa cuneata 5.88 252 0.50 'Unidentfied crab' 4.20 378 0.36
Lethrinus atlanticus 0.38 2 0.56 Squilla mantis 0.36 14 0.53	Bembrops greyi 2.52 378 0.21 Perestedion cataphractum 1.26 42 0.11
Cynoglossus browni 0.32 8 0.47 Pseudupeneus prayensis 0.24 6 0.35	Microchirus wittei 1.26 42 0.11
Sepia officinalis hierredda	Syacium micrurum 0.42 42 0.04
ANTENNARIIDAE 0.04 4 0.06	
Grammoplites gruveli 0.04 4 0.06	Total 1179.96 100.03
Sphoeroides marmoratus 0.04 6 0.06 Trachinus lineolatus 0.02 2 0.03	
Alectis alexandrinus 0.02 2 0.03	DR. FRIDTJOF NANSEN PROJECT:IG PROJECT STATION: 553 DATE:14/6/04 GEAR TYPE: BT No:15 POSITION:Lat N 614
Total 68.38 100.03	start stop duration Long E 346 TIME :09:05:25 09:05:34 30 (min) Purpose code: 3
	LOG :8222.93 8224.35 1.41 Area code : 5 FDEPTH: 77 77 GearCond.code:
	BDEPTH: 77 77 Validity code: Towing dir: 80¢ Wire out: 240 m Speed; 30 kn*10
DR. FRIDTJOF NAMSEN PROJECT:IG PROJECT STATION: 551	Sorted: 27 Kg Total catch: 156.84 CATCH/HOUR: 313.68
DATE:13/ 6/04 GEAR TYPE: BT No:15 POSITION:Lat N 609 start stop duration Long E 328	
TIME :16:04:47 16:35:17 31 (min) Purpose code: 3 LOG :8130.47 8132.04 1.55 Area code : 5	SPECIES CATCH/HOUR % OF TOT. C SAMP weight numbers
FDEPTH: 111 110 GearCond.code: BDEPTH: 111 110 Validity code:	Dentex angolensis 94.04 748 29.98 2632 Sepia officinalis hierredda 44.60 92 14.22
Towing dir: 270¢ Wire out: 320 m Speed: 30 kn*10	Priacanthus arenatus 41.80 558 13.33 Dentex congoensis 23.40 638 7.46 2630
Sorted: 60 Kg Total catch: 489.51 CATCH/HOUR: 947.44	Sphyraena guachancho 15.12 90 4.82 Epinephelus aeneus 12.20 2 3,89
SPECIES CATCH/HOUR % OF TOT. C SAMP	Pagellus bellottii 11.52 252 3.67 2631 Squatina oculata 8.16 10 2.60
weight numbers Dentex congoensis 539.61 10719 56.95 2623	Boops boops 7.56 198 2.41 2627 Trigla lyra 6.58 216 2.10
Boops boops 152.25 2510 16.07 2620 Dentex angolensis 63.56 801 6.71 2622	Ariomma bondi 6.58 116 2.10 2628 Pseudupeneus prayensis 6.40 116 2.04 2629
Zeus faber 53.59 35 5.66 Uranoscopus polli 23.32 178 2.46	Cynoglossus canariensis 4.32 8 1.38 Brachydeuterus auritus 4.32 54 1.38
Selar crumenophthalmus 18.87 89 1.99 Lepidotrigla cadmani 18.15 410 1.92	Scorpaena scrofa
Priacanthus arenatus 15.68 250 1.65 Lophiodes kempi 10.14 54 1.07	Brotula barbata 2.98 10 0.95
Sepia officinalis hierredda 8.73 232 0.92	Raja miraletus 2.74 10 0.87
Brotula barbata 5.52 35 0.58 Epinephelus aeneus 4.20 2 0.44	Uranoscopus albesca 2.52 8 0.80 Fistularia petimba 2.50 14 0.80
Todarodes sagittatus 4.10 124 0.43	Pagrus caeruleostictus 2.26 8 0.72 Citharus linguatula 2.08 234 0.66
Gobius sp 2.50 658 0.26	GASTROPODS 0.54 8 0.17 Syacium micrurum 0.54 98 0.17
Citharus linguatula 2.50 195 0.26	Chaetodon marcellae 0.46 8 0.15 Calappa pelii 0.10 8 0.03
Mustelus mustelus 2.34 2 0.25 Calappa pelii 2.32 17 0.24	Total 313.68 100.00
Scomber japonicus	
Scyliorhinus sp. 1.18 2 0.12 Serranus africana 0.89 72 0.09	DR. FRIDTJOF NANSEN PROJECT:IG PROJECT STATION: 554
Scorpaena normani	DATE:14/ 6/04 GEAR TYPE: BT No:15 POSITION:Lat N 622 start stop duration Long E 347
Squilla mantis 0.54 17 0.06 Octopus vulgaris 0.37 2 0.04	TIME :11:07:00 12:06:51 30 (min) Purpose code: 3 LOG :8237.98 8239.47 1.46 Area code : 5
Cepola pauciradiatus 0.35 17 0.04 Ariomma bondi 0.17 17 0.02	FDEPTH: 25 25 GearCond.code: BDEPTH: 25 25 Validity code:
Microchirus wittei 0.17 17 0.02 Sepiella ornata 0.10 17 0.01	Towing dir: 90¢ Wire cut: 125 m Speed: 30 kn*10
Total 947.90 100.02	Sorted: 16 Kg Total catch: 16.37 CATCH/HOUR: 32.74
	SPECIES CATCH/HOUR % OF TOT. C SAMP
	weight numbers Alectis alexandrinus 11.54 18 35.25 2633
	Scomberomorus tritor 5.82 10 17.78 2634 Ephippion guttifer 4.52 4 13.81
	Sphyraena afra 3.56 4 10.87 2636 Priacanthus arenatus 1.98 20 6.05
	Elops lacerta 1.62 4 4.95 Sepia orbignyana 0.90 2 2.75
	Sardinella aurita 0.60 2 1.83 Balistes punctatus 0.54 2 1.65
	Pomadasys jubelini 0.50 2 1.53 Chaetodipterus goreensis 0.46 4 1.41 2635
	Chaetodipterus goreensis 0.46 4 1.41 2635 Lethrinus atlanticus 0.34 2 1.04
	Chaetodipterus goreensis 0.46 4 1.41 2635 Lethrinus atlanticus 0.34 2 1.04 Raja miraletus 0.20 2 0.61 Boops boops 0.06 2 0.18
	Chaetodipterus goreensis 0.46 4 1.41 2635 1.04 2 1

DR. F	RIDTJOF N.	ANSEN	I	ROJECT: IG	PROJECT STA	555	
DATE:	14/ 6/04		GEAR TYP	E: BT No:15	POSITION: Lat	N	620
	start	stop	duration		Long	E	405
TIME	:14:14:1	8 14:44:28	30 (min)	Purpose co	de: 3		
LOG	:8257.24	8258.67	1.43	Area code	: 5		
FDEPT	H: 18	19		GearCond.c	ode:		
BDEPT	H: 18	19		Validity c	ode:		
	Towing	dir: 280¢	Wire out:	105 m Speed	: 30 kn*10		
Sor	ted: 29	Kg To	tal catch:	71.94	CATCH/HOUR:	143	.88

SPECIES	CATCH	I/HCUR	% OF TOT.	SAME
	weight	numbers		
Trichiurus lepturus	47.26	2790	32.85	
Pentanemus quinquarius	15.66	550	10.88	2640
Pseudotolithus typus	15.56	350	10.81	2637
Galeoides decadactylus	9.66	264	6.71	2638
Scomberomorus tritor	7.74	44	5.38	2641
Caranx hippos	7.66	36	5.32	
Chloroscombrus chrysurus	7.66	264	5.32	2644
Nematopalaemon hastatus	6.76	2070	4.70	
Ilisha africana	4.90	574	3.41	2647
Pseudotolithus epipercus	3.30	60	2.29	2645
Pteroscion peli	2.36	70	1,64	2643
Sphyraena afra	1.92	6	1.33	2639
Squilla acuelata calmani	1.90	114	1.32	
Callinertes amnicola	1.66	70	1.15	
Selene dorsalis	1.66	120		2646
Drepane africana	1.64	40	1.14	
Sepiella ornata	1.50	370	1.04	
Brachydeuterus auritus	1.46	30	1.01	2642
Parapenaeopsis atlantica	1.06	164		
Pomadasys jubelini	0.54	4	0.38	
Sphyraena quachancho	0.54	4	0.38	
Lagocephalus laevigatus	0.26	10	0.18	
Sardinella maderensis	0.20	24	0.14	
Halobatrachus didactylus	0.20	2	0.14	
Psettodes belcheri	0.16	4	0.11	
Pythonichthys microphthalmus	0.16	10	0.11	
Pseudotolithus senegalensis	0.16	20	0.11	
Cynoglossus browni	0.10	4	0.07	
Ephippion guttifer	0.10	20	0.07	
Peristedion cataphractum	0.08	2	0,06	
Brotula barbata	0.06	- 4	0.04	
Total	143.88		99.98	

		JOF NA	NSEN		PROJECT: IG			ROJECT			
DATE:	14/	6/04		GEA	R TYPE	BT No	:15 POS	ITION:	Lat	N	617
		start	stop	durati	on				Long	E	402
TIME	:15	:58:23	16:28:25	30	(min)	Purpose	e code:	3			
LOG	:82	66.78	8268.44	1.63		Area co	ode :	5			
FDEPT	H:	38	35			GearCon	nd.code:				
BDEPT	Η:	38	35			Validit	ty code:				
	To	wing d	r: 100¢	Wire	out: 1	55 m Sp	peed: 30	kn*10	i.		

Sorted: 24 Kg Total catch	73.0	0 CAT	CH/HOUR:	146.00
SPECIES	CATCH	/HOUR	% OF TOT.	C SAME
	weight	numbers		
Galeoides decadactylus	25.36	490	17,37	2652
Trichiurus lepturus	18.90	490	12.95	
Sphyraena guachancho	18.00	140	12.33	2649
Selene dorsalis	15.80	426	10.82	2650
Ilisha africana	11.24	750	7.70	2651
Portunus validus	10.40	80	7.12	
Chloroscombrus chrysurus	9.86	110	6.75	2654
Brachydeuterus auritus	6.16	126	4.22	2656
Scomberomorus tritor	6.10	24	4.18	2648
Drepane africana	4.16	126	2.85	
Pomadasys jubelini	3.70	20	2.53	
Sepia officinalis hierredda	3.06	16	2.10	
Penaeus notialis	2.50	60	1,71	
Pteroscion peli	2.20	66	1.51	2655
Caranx hippos	1.70	6	1.16	
Pseudotolithus typus	1.46	16	1.00	
Sardinella maderensis	1.34	40	0.92	2653
Psettodes belcheri	0.80	10	0.55	
Lagocephalus laevigatus	0.70	10	0.48	
Squilla acuelata calmani	0.46	20	0.32	
Calappa rubroguttata	0.46	6	0.32	
Epinephelus aeneus	0.40	6	0.27	
Ephippion guttifer	0.36	20	0.25	
Chaetodipterus goreensis	0.26	6	0.18	
Parapenaeopsis atlantica	0.20	30	0.14	
Penaeus kerathurus	0.20	6	0.14	
Antennarius sp.	0.10	20	0.07	
Pentanemus quinquarius	0.06	6	0.04	
Sicyonia galeata	0.06	26	0.04	
Total	146.00		100.02	

DR. FI			ISEN		P	ROJECT	:IG	Pl	ROJECT STAT	: NOI:	557
DATE:	15/ 6	/04		GE.	AR TYP	E: BT	No:15	POS:	ITION:Lat	N	603
		tart		durat.	ion				Long	E	413
TIME			06:23:37		(min)	Purp	ose cod	e;	3		
LOG	:835	5.41	8355,72	0.30		Area	code	1	5		
FDEPTH	1 :	98	98			Gear	Cond.co	de:			
BDEPTE	1:	98	98			Vali	dity co	de:	3		
	Tow	ing d	ir: 105ø	Wire	out:	270 m	Speed:	30	kn*10		
Sort	ed:	25 Kg	T To	tal c	atch:	25	.06	CAT	CH/HOUR:	214	.80

SPECIES	CATCH	HOUR	% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	40.97	531	19.07	
Uranoscopus albesca	27.60	283	12.85	
Dentex congoensis	25.80	669	12.01	2657
Portunus validus	13.54	86	6.30	
Lepidotrigla cadmani	12.43	240	5.79	
Dentex angolensis	12.09	137	5.63	2658
Gobius sp	9.94	1706	4.63	
Pythonichthys microphthalmus	9.43	34	4.39	
Citharus linguatula	8.66	86	4.03	
Octopus vulgaris	7.54	51	3.51	
Cynoglossus canariensis	6.77	26	3.15	
Raja miraletus	6.17	26	2.87	
Dicologoglossa cuneata	4.37	51	2.03	
Microchirus frechkopi	3.86	94	1.80	
Lepidotrigla carolae	3.43	154	1.60	
Illex coindetii	3.43	86	1.60	
Lophiodes kempi	3.26	26	1.52	
Sphyraena guachancho	2.57	26	1.20	
Scorpaena normani	2.23	43	1.04	
Trichiurus lepturus	1.97	43	0.92	
Syacium micrurum	1.97	377	0.92	
Serranus accraensis	1.71	103	0.80	
Sphoeroides pachgaster	1.11	26	0.52	
Brotula barbata	0.94	9	0.44	
Ariomma bondi	0.77	26	0.36	
HOLUTHUROIDEA	0.60	60	0.28	
Solenocera africana	0.51	103	0.24	
Priacanthus arenatus	0.43	17	0.20	
Blennius normani	0.43	17	0.20	
Physiculus huloti	0.26	9	0.12	
Total	214.79		100.02	

DR. FE	RIDI	JOF NA	NSEN			PROJECT	T:IG	P	ROJECT STAT	NOI!	558
DATE:	15/	6/04		GE	AR TY	PE: BT	No:15	POS	ITICN:Lat	N	611
			stop						Long	E	415
			08:50:02			Pur	pose cod	e:	3		
LOG	:83	69.51	8371.04	1.51		Area	a code	2	5		
FDEPTI	i:	42	42			Gear	rCond.co	de:			
BDEPTH	1:	42	42			Val:	idity co	de:			
	To	wing d	ir: 1000	Wire	out:	140 m	Speed:	30	kn*10		

Sorted: 45 Kg Total catch: 45.18 CATCH/HOUR:

SPECIES	CATCH	I/HOUR	% OF	TOT. C	SAMP
	weight	numbers			
Brachydeuterus auritus	21.40	788		23.68	2659
Chloroscombrus chrysurus	18.28	202		20.23	2661
Portunus validus	16.90	68		18.70	
Sepia officinalis hierredda	9.40	26		10.40	
Sphyraena guachancho	4.74	98		5.25	2662
Scomberomorus tritor	4.34	8		4.80	
Pagellus bellottii	4.30	52		4.76	2660
Parapenaeus longirostris	2.40	442		2.66	
Trichiurus lepturus	1.58	204		1.75	
Citharus linguatula	1.14	58		1.26	
Epinephelus aeneus	1.14	4		1,26	
Grammoplites gruveli	1.10	68		1.22	
Saurida brasiliensis	0.84	292		0.93	
Lolligoncula mercatoris	0.54	480		0.60	
Sardinella maderensis	0.54	8		0.60	
Selene dorsalis, juveniles	0.42	152		0.46	
Balistes capriscus	0.40	2		0.44	
Psettodes belcheri	0.20	2		0.22	
Fistularia petimba	0.18	4		0.20	
Alloteuthis africana	0.16	54		0.18	
Lagocephalus laevigatus	0.14	10		0.15	
Illex coindetii	0.04	2		0.04	
Sepiella ornata	0.04	16		0.04	
Sicyonia galeata	0.04	16		0.04	
Lepidotrigla carolae	0.02	2		0.02	
Gobius sp	0.02	2		0.02	
Naucrates ductor	0.02	2		0.02	
Decapterus macarellus	0.02	10		0.02	
Serranus accraensis	0.02	6		0.02	
Total	90.36		_	99.97	

DATE: 15/ 6/04	GEAR TY	PE: BT No:15	POSI	TION: Lat	N	615
start stop	duration			Long	E	418
TIME :10:02:25 10:32	:03 30 (min	Purpose o	code:	3		
LOG :8379.45 8381.	08 1.61	Area code	9 :	5		
FDEPTH: 23	26	GearCond.	.code:			
BDEPTH: 23	26	Validity	code:			
Towing dir: 13	Op Wire out:	120 m Spee	ed: 30	kn*10		
Sorted: 57 Kg	Total catch:	610.14	CATO	CH/HOUR:	122	0.28
SPECIES		CATCH/HO	our	% OF TOT.	С	SAMP
		weight m	umbers			
Chloroscombrus chrysurus		825.40	8780	67.6	4	2665
Sphyraena guachancho		91.80	280	7.5	2	2663
Trichiurus lepturus		57.00	3860	4,6	7	
Caranx senegallus		52.60	160	4.3	1	
Sphyraena afra		51.00	10	4.1	8	
Pomadasys jubelini		27.00	120	2.2	1	
Hemicaranx bicolor		22.40	140	1.8	4	
Sardinella maderensis		19.00	160	1.5	б	
Scomberomorus tritor		15.62	88	1.2	В	2664
Pteroscion peli		12.20	440	1.0	0	
Galeoides decadactylus		9.60	200	0.7	9	
Selene dorsalis		7.80	80	0.6	4	
Brachydeuterus auritus		6.80	100	0.5	6	
Portunus validus		6.40	40	0.5	2	
Ilisha africana		5.80	640	0.4	В	
Pseudotolithus typus		4.34	34	0.3		2666
Caranx hippos		2.00	20	0.1	5	
Raja miraletus		1.20	4	0.10)	
Elops lacerta		0.98	4	0.04		
Parapenaeopsis atlantica		0.60	100	0.0	5	
Drepane africana		0.40	20	0.0		
ANTENNARIIDAE		0.20	20	0.03		
Halobatrachus didactylus		0.14	2	0.0	1	
Total	·	1220.28		100.0	ī	

PROJECT: IG

PROJECT STATION: 559

DR. FRIDTJOF NANSEN

DR. FRIDTJOF NANSEN	PROJECT: IG		ROJECT STAT:	
	TYPE: BT No:	15 POSI	TION:Lat	N 605
start stop duratio			Long	E 434
	min) Purpose			
LOG :8398.85 8399.60 0.73	Area co		5	
FDEPTH: 25 25	GearCon			
BDEPTH: 25 25	Validit			
Towing dir: 300¢ Wire o	out: 115 m Sp	eed: 30	kn*10	
Sorted: 21 Kg Total cat	ch: 76.35	CATO	TH/HOUR:	269.47
SPECIES	CATCH/	HOUR	% OF TOT. (SAMP
0100100	weight	numbers		7 51511
Chloroscombrus chrysurus	81.53	1112	30.26	2667
Pseudotolithus senegalensis	41.72	1080	15.48	
Sphyraena quachancho	41.12	187	15.26	
Scomberomorus tritor	12.92	85	4.79	2669
Selene dorsalis	12.28	381	4.56	
Pteroscion peli	11.86	1461	4.40	
Galeoides decadactylus	10.06	1112	3.73	2671
Elops lacerta	9.74	42	3.61	
Parapenaeopsis atlantica	6.99	487	2.59	
Portunus validus	6.99	180	2.59	
Ilisha africana	6.25	519	2.32	2675
Sepiella ornata	5.93	32	2.20	
Cynoglossus canariensis	5.40	233	2.00	
Cynoponticus ferox	4.02	11	1.49	
Trichiurus lepturus	3.18	265	1.18	
Sardinella maderensis	3.04	28	1.13	2672
Drepane africana	1.69	53	0.63	
Squilla acuelata calmani	1.69	95	0.63	
Penaeus monodon	0.78	4	0.29	
Penaeus notialis	0.64	32	0.24	
Batrachoides didactylus *	0.53	7	0.20	
Brachydeuterus auritus	0.32	11	0.12	
ANTENNARIIDAE	0.32	32	0.12	
Citharichthys stampflii	0.18	11	0.07	
CRABS	0.11	32	0.04	
Ephippion guttifer	0.11	11	0.04	
Goboloides sp	0.11	21	0.04	
Total	269.51		100.01	

Total

DR. FRIDTJOF NANSEN DATE:15/ 6/04 GEAR start stop duratic TIME :14:09:30 14:39:15 30	TYPE: BT No	:15 POS	ITION:Lat	N 60
TIME :14:09:30 14:39:15 30 LOG :8407.86 8409.62 1.75	on (min) Purpos	e code:	Long 3	E 43
10407.00 0409.62 1.75	Area c	ode :	5	
FDEPTH: 45 42 BDEPTH: 45 42		nd.code:		
Towing dir: 120¢ Wire	varidi out: 150 m S	ty code: peed: 30	kn*10	
Sorted: Kg Total cat			CH/HOUR:	59.46
PECIES			% OF TOT.	
rachydeuterus auritus	15.60	numbers 640 56	26.24	267 267
phyraena guachancho	10.92	640 56	18.37	267
elene dorsalis	7.60 7.22			268
ardinella maderensis	7.22	72 50	12.14	268
agellus bellottii	5.54			
hloroscombrus chrysurus ortunus validus	3.56	34	5.99	
epia officinalis hierredda	2.68 0.96	8 6 2	4.51	
comberomorus tritor	0.78	6 2 242	1.61	
aurida brasiliensis	0.74	242	1.24	
olligoncula mercatoris	0.64	762	1.08	
arapenaeus longirostris	0.54	762 128	0.91	
lloteuthis africana	0.48	120	0.81	
lops lacerta	0.46	2	0.77	
itharus linguatula	0.38		0.64	
rammoplites gruveli	0.36	32	0.61	
ecapterus punctatus	0.24	6	0.40	
teroscion peli richiurus lepturus	0.24 0.16	12	0.40	
enaeus notialis	0.16	16	0.27	
epiella ornata	0.12	10	0.20	
icyonia sp.	0.08	1.4	0.13	
RABS	0.02	1.0	0.03	
ranoscopus albesca	0.02	2	0.03	
erranus accraensis	0.02		0.03	
otal	59.46		99.99	
DR. FRIDTJOF NANSEN DATE:15/ 6/04 start stop duratio TIME :16:20:26 16:50:11 30	PROJECT:IC	3 PF :15 POSI e code:	3	N 55
DR. FRIDTJOF NANSEN DATE:15/ 6/04 GEAR start stop duratio TIME :16:20:26 16:50:11 30 LOG :8420.02 8421.69 1.65 FDEFTH: 91 81	PROJECT:IC TYPE: BT No n min) Purpose Area co GearCo	3 PF:15 POST	ITION:Lat Long 3	ION: 56 N 55 E 42
DR. FRIDTJOF NANSEN DATE:157 6/04 start stop duratio TIME :16:20:26 16:50:11 30 (LOG :8420.02 821.69 1.65	PROJECT:IC TYPE: BT No n min) Purpose Area co GearCon Validi	3 PF:15 POST e code: ode : nd.code: ty code:	ITION:Lat Long 3 5	N 55
DR. FRIDTJOF NANSEN DATE:15/ 6/04 start Stop duratio TIME :16:20:26 16:50:11 30 (LOG :8420.02 8421.69 1.65 FDEPTH: 91 81 EDEPTH: 91 81	PROJECT: No TYPE: BT No n min) Purpos Area co GearCon Validio	3 PF:15 POST e code: ode : nd.code: ty code: peed: 30	Long Long kn*10	N 55 E 42
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG:8420.02 8421.69 1.65 FDEETH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat	PROJECT:IC TYPE: BT No n min) Purpose Area c GearCor Validi ut: 290 m S 113.36	3 PH:15 POST e code: ode: ode: ty code: peed: 30 4 CATC	ITION:Lat Long 3 5 kn*10 CH/HOUR:	N 55 E 42
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 DOWNING dir: 1100 Wire o Sorted: 31 Kg Total cat	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCot Validut: 290 m Si ch: 113.34	3 PF: 15 POST e code: ode : nd.code: ty code: peed: 30 4 CATO	TION:Lat Long 3 5 kn-10 CH/HOUR:	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:15/ 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG:8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES	PROJECT: IC TYPE: BT No n min) Purpose Area co GearCon Validi ut: 290 m Si ch: 113.34	3 PF: 15 POS: e code: ode : nd.code: ty code: peed: 30 4 CATC /HOUR numbers 432	TION: Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. (N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:15/6/04 GEAR start stop duratio TIME:15:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire of Sorted: 31 Kg Total cat	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCot Validut: 290 m S; ch: 113.34 CATCH. Weight 85.20 34.08	G PF:15 POS: e code: code: code: ty code: peed: 30 4 CATO /HOUR numbers 432 318	TION:Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. (37.59 15.03	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LCG: 8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella durita	PROJECT: IC TYPE: BT No n min) Purpos; Area cc GearCon Validi ut: 290 m s; ch: 113.3c CATCH, weight 85.20 34.08 26.40	G PF: :15 POS: e code: ode : nd.code: ty code: peed: 30 4 CATC /HOUR numbers 432 318 288	TION:Lat Long 3 5 kn-10 CH/HOUR: 37,59 15.03 11.65	N 55 E 42 226.68
DR. FRIDTUOF NANSEN DATE:15/ 6/04 start stop duratio TIME :16:20:26 16:50:11 30 (LOG :8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire of Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindetii	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCot Validut: 290 m S; ch: 113.34 CATCH. Weight 85.20 34.08	3 PH:15 POS: e code: ode : nd.code: ty code: peed: 30 4 CATC /HOUR numbers 432 318 288 120	TION:Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. (37,59 15.03 11.65 4.31	N 55 E 42 226.68
DR. FRIDTUOF NANSEN DATE:15/ 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG:8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire of Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharus linguatula	PROJECT: IT TYPE: BT No n min) Purpose Area c (GearCor Validit ut: 290 m Si ch: 113.36 CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94	3 PF: :15 POS: e code: ode : nd.code: ty code: ty code: 4 CATC /HOUR numbers 432 3188 288 120 966	TION:Lat Long 3 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 DEPTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES FICEMA bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharus linguatula ranoscopus albesca	PROJECT: IC TYPE: BT No n min) Purpos: Area cc GearCor Validiu ut: 290 m S ch: 113.3c CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94	3 PF: 15 POS: e code: ode : nd.code: ty code: peed: 30 4 CATC /HOUR numbers 432 318 288 120 96 372 78	TION:Lat Long 3 5 5	N 55 E 42 226.68
DR. FRIDTUOF NANSEN DATE:157 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG :8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire of Sorted: 31 kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharus linguatula ranoscopus albesca ajam miralets	PROJECT: IC TYPE: BT No n min) Purpose Area co GearCor Validi ut: 290 m Si ch: 113.34 CATCH. weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34	G PF: 15 POS! e code: od.code: tod.code: y code: peed: 30 4 CATC /HOUR numbers 432 318 288 120 96 372 78 332	TION:Lat Long 3 5 kn-10 CH/HOUR: 8 OF TOT. (37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.38	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 DEPTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES Fricmma bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharva linguatula ranoscopus albesca aja miraletus hlomyctertus spinosus mauret.	PROJECT: IC TYPE: BT No n min) Purpose Area co GearCor Validi ut: 290 m Si ch: 113.34 CATCH. weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34	G PF: 115 POS: bde : decode: cde: cpeed: 30 4 CATC /HOUR numbers 432 318 288 120 96 372 78	TION:Lat Long 3 5 kn*10 CH/HOUR: % OF TOT. 37.59 15.03 11.65 4.31 3.76 2.62 2.38	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus	PROJECT: IC TYPE: BT No n min) Purpos: Area cc GearCor Validiu ut: 290 m S ch: 113.3c CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94	G PF: 15 POS: e code: od.code: ty code: peed: 30 4 CATO /HOUR numbers 432 318 288 120 96 372 78 32 24	TION:Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. (37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEFTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharus linguatula ranoscopus albesca aja miraletus hlomycterus spinosus mauret. ustelus mustelus ustelus coulata	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCor Validi ut: 290 m S; ch: 113.34 CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 4.80 5.34 4.80 4.70	G PF: 15 POS: e code: od.code: ty code: peed: 30 4 CATO /HOUR numbers 432 318 288 120 96 372 78 32 24	TION:Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. (37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 10 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindeti entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCor Validi ut: 290 m S; ch: 113.3c CATCH. weight 85.20 34.08 26.40 9.78 8.52 5.94 5.34 5.04 4.80	3 PH:15 POS! e code: ode: ind.code: cy code: peed: 30 4 CATC /HOUR numbers 432 318 288 120 96 372 78 32 24 4 666	TION:Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG:8420.02 8421.69 1.65 FDEPTH: 91 81 TOwing dir: 110¢ Wire of Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina ocultaa entex congoensis phyraena guachancho	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCor Validi ut: 290 m Si ch: 113.3c CATCH. weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34 4.80 4.70 4.38 4.14	3 PH:15 POS! e code: ode: ind.code: cy code: peed: 30 4 CATC /HOUR numbers 432 318 288 120 96 372 78 32 24 4 666	TION:Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:15/ 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita 1lex coindetii entex angolensis itharus linguatula ranoscopus albesca aja miraletus hlomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis ent	PROJECT: IC TYPE: BT No n min) Purpos: Area cc GearCor Validiu ut: 290 m S ch: 113.3c CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34 5.04 4.80 4.70 4.38 4.14 3.78	G PH:15 POS:16 P	TION:Lat Long 3 5 kn*10 CH/HOUR: % OF TOT. 37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22 2.12 2.07 1.93 1.83	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:15/ 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindeti entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis bhyraena guachancho epidotrigla cadmani tcopus vulgaris	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCoi Validi ut: 290 m Si ch: 113.3c CATCH. weight 85.20 34.08 26.40 9.78 8.52 5.94 5.44 5.04 4.80 4.70 4.38 4.14 3.78	G PH:15 POS: e code: bde : ad.code: ty code: y code: peed: 30 4 CATC /HOUR numbers 3188 288 120 96 372 24 4 66 18 72 366	TION:Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:15/ 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES FICTURE STORT ST	PROJECT: IC TYPE: BT No n min) Purpos: Area cc GearCoi Validi ut: 290 m Si ch: 113.34 CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 4.80 4.70 4.38 4.14 3.78 3.30 3.06	G PF: 115 POS: bde : ad.code: by code: by code:	TION: Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. (37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22 2.12 2.07 1.93 1.83 1.67 1.46 1.35	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG:8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir:1100 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindeti entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis phyraena guachancho epidotrigla cadmani ctopus vulgaris riacanthus arenatus ortunus validus	PROJECT: IC TYPE: BT No n Purpos Area cc GearCon Validi ut: 290 m S; ch: 113.3c CATCH, weight 85.20 34.08 8.52 5.94 5.40 9.78 8.52 5.94 5.40 4.80 4.70 4.38 4.14 3.78 4.30 3.06 1.92	G PF: 115 POS: bde : ad.code: by code: by code:	TION: Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. (37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22 2.12 2.07 1.93 1.83 1.67 1.46 1.35	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:15/ 6/04 GEAR Start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 TOwing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharus linguatula ranoscopus albesca anja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis phyraena guachancho epidotrigla cadmani ttopus vulgaris riochurus lepturus	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCot Validut: 290 m S; ch: 113.3c CATCH Weight 85.20 34.08 26.40 9.78 8.52 5.94 4.80 4.70 4.38 4.14 3.78 3.30 3.06 1.92	G PF: 1:15 POS: ode: ode:: od:	TION: Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. (37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22 2.12 2.07 1.93 1.83 1.67 1.46 6.135 0.85	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LCG: 8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindeti entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis phyraena guachancho epidorrigla cadmani ctopus vulgaris ricanthus arenatus ortunus validus richiurus lepturus oops boops	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCor Validiu ut: 290 m S; ch: 113.3c CATCH. weight 85.20 34.08 26.40 9.78 8.52 5.94 5.34 5.04 4.80 4.70 4.38 4.14 3.78 3.30 3.06 1.92 1.80	G PF: 15 POS: 1	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420:02 8421.69 1.65 FDEPTH: 91 81 TOwing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex condetii entex angolensis itherus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis phyraena guachancho epidotrigla cadmani ctopus vulgaris riacanthus arenatus ortunus validus richiurus lepturus cops boops rotula barbata	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCot Validut: 290 m S; ch: 113.3c CATCH Weight 85.20 34.08 26.40 9.78 8.52 5.94 4.80 4.70 4.38 4.14 3.78 3.30 3.06 1.92	G PF: 115 POS: e code: c	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
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DR. FRIDTJOF NANSEN DATE:157 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES FIOEMA bondi entheroscion mbizi ardinella aurita 1lex coindeti; entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatania oculata entex congoensis phyraena guachancho epidotrigla cadmani ctopus vulgaris ricacanthus arenatus ortunus validus richiurus lepturus oops boops rotula barbata arapenasopsis atlantica istularia petimba rachydeuterus auritus	PROJECT: IC TYPE: BT No n min) Purpos: Area cc GearCor Validiu ut: 290 m S ch: 113.3c CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34 4.80 4.70 4.38 4.14 3.78 3.30 3.06 6.192 1.80 0.96 0.90 0.84	G PF: 15 POS: 1	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG:8420.02 8421.69 1.65 FDEPTH: 91 81 Towing dir: 110¢ Wire of Sorted: 31 Kg Total cat PECIES FIORMAD BOND SORTED: 10 10 10 10 10 10 10 10 10 10 10 10 10	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCo Validi ul: 290 m Si ch: 113.3c CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34 4.80 4.70 4.38 4.14 3.78 3.30 3.06 1.74 4.90 0.90 0.84 0.84	G PH:15 POS: e code: bde : ad.code: ty code: y code: peed: 30 4 CATC /HOUR numbers 3188 288 120 20 466 372 244 666 188 68 646 364 244 66 1144 122 68	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
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DR. FRIDTJOF NANSEN DATE:157 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEETH: 91 81 BDEPTH: 91 10 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindeti entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis phyraena guachancho epidorrigla cadmani ctopus vulgaris ricanthus arenatus ortunus validus richiurus lepturus oops boops rotula barbata arapenaeopsis atlantica istularia petimba rachydeuterus auritus ardinella maderensis corpaena normani	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCo Validi ut: 290 m SI ch: 113.3c CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34 4.80 2.70 4.38 4.14 3.78 3.30 3.06 1.92 1.80 0.90 0.84 0.82 0.60 0.48	G PF: 115 POS: ade: code: code: code: cy code: code: cy code: code: cy code: code: cy code: c	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEFTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES FIORMAD BOND SORTED: 110¢ Wire o Sorted: 31 Kg Total cat A cat Sorted: 31 Kg Total cat FECIES FIORMAD BOND SORTED: 110¢ Wire o FOR SORTED: 110¢ Wire o Sorted: 31 Kg Total cat A cat FECIES FIORMAD BOND SORTED: 110¢ Wire o Sorted: 31 Kg Total cat A cat FECIES FIORMAD BOND SORTED: 110¢ Wire o Sorted: 31 Kg Total cat A cat Incomparis FIORMAD BOND SORTED: 110¢ Wire o FIORMAD BOND	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCot Validut: 290 m Si ch: 113.3c CATCH Weight 85.20 34.08 26.40 9.78 8.52 5.94 4.80 4.70 4.38 4.14 3.78 3.30 6.1.92 1.80 1.74 0.96 0.90 0.84 0.82 0.60 0.48	G PF::15 POS: c c code: c c code: c c code: c c c c c c c c c c c c c c c c c c c	TION: Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. 37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22 2.12 2.07 2.07 1.46 6.35 0.85 0.85 0.85 0.77 0.42 0.40 0.37 0.37 0.36 0.26 0.21 0.19	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:15/ 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita 1lex coindetii entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis phyraena guachancho epidorrigla cadmani ctopus vulgaris riacanthus arenatus ortunus validus richiurus lepturus oops boops rotula barbata arapenaeopsis atlantica istularia petimba rachydeuterus auritus ardinella maderensis yngolossus canariensis corpaena normani epidotrigla carenaes	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCor Validiu ut: 290 m S; ch: 113.36 CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 5.34 5.04 4.80 4.70 4.38 4.14 3.78 3.30 3.06 6.1.92 1.80 0.96 0.99 0.84 0.82 0.60 0.48	G PF: 115 POS: 15 POS: 15 POS: 15 POS: 16 POS:	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NAMSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420:02 8421.69 1.65 FDEFTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES FICHEM STORY ST	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCol Validi ut: 290 m Sl ch: 113.34 CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 4.80 3.30 4.70 4.38 4.14 3.78 3.30 6.1.92 1.80 0.90 0.84 0.84 0.82 0.60 0.48 0.42 0.30	G PF:115 POS: c c code: c c code: c c code: c c c c code: c c c c c c c c c c c c c c c c c c c	TION: Lat Long 3 5 kn-10 CH/HOUR: % OF TOT. 37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22 2.17 1.93 1.83 1.67 1.46 6.35 0.79 0.77 0.42 0.40 0.37 0.37 0.37 0.36 0.26 0.21 0.19 0.13 0.13	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES FICEMA bond: FOR TOTAL CAT FOR TO	PROJECT: IC TYPE: BT No n min) Purpost Area ct GearCot Validit ut: 290 m S ch: 113.3 CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34 4.80 4.70 4.38 4.14 3.78 3.30 3.06 6.192 1.80 0.96 0.90 0.84 0.82 0.60 0.48 0.42 0.30 0.30 0.24	G PF: 115 POS: ade: ade: ade: ade: ade: ade: ade: ade	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NAMSEN DATE:157 6/04 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420:02 8421.69 1.65 FDEFTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat PECIES riomma bondi entheroscion mbizi ardinella aurita llex coindetii entex angolensis itharvs linguatula ranoscopus albesca aja miraletus hllomycterus spinosus mauret. ustelus mustelus quatina oculata entex congoensis phyraena guachancho epidotrigla cadmani ctopus vulgaris richiurus lepturus oops boops rotula barbata arapenaeopsis atlantica istularia petimba rachydeuterus auritus ardinella maderensis ynoglossus canariensis corpaena normani epidotrigla carolae erranus accraensis ophiodes kempi yacium micturum ierochirus frechkopi	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCo Validi ut: 290 m S; ch: 113.34 CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 4.80 9.78 8.52 5.94 4.80 1.74 4.80 1.72 4.80 1.74 0.96 0.90 0.84 0.82 0.60 0.42 0.30 0.24	G PP: 115 POS: ode: ode:: od.code: ty code: peed: 30 4 CATC /HOUR numbers 318 288 120 96 372 278 32 24 4 66 18 36 6 18 36 6 18 36 6 18 36 6 18 36 6 18 36 6 6 18 4 6 6 18 4 6 6 18 4 6 6 18 4 6 6 6 18 4 6 6 6 6 18 6 6 6 6 18 6 6 6 6 6 7 7 8 7 8 8 8 8 8 8 8 8 8 8	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6/04 start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420.02 8421.69 1.65 FDEPTH: 91 81 Towing dir: 1100 Wire o Sorted: 31 Kg Total cat EECIES FIOEMA bondi entheroscion mbizi ardinella aurita allex coindeti; entex angolensis itharus linguatula ranoscopus albesca aja miraletus hilomycterus spinosus mauret. ustelus mustelus quatina oculata entex congensis ricamathos area disconsis phyraena guachancho epidotrigla cadmani ctopus vulgaris richarus lepturus corps boops rotula barbata arapenaeopsis atlantica istularia petimba rachydeuterus auritus ardinella maderensis vnoglessus canariensis corpaena normani epidotrigla carolae erranus accraensis ophidaes kempi yacium micrurum ierochirus frechkopi erranus africana	PROJECT: IC TYPE: BT No n min) Purpost Area ct GearCot Validit ut: 290 m Sg ch: 113.34 CATCH. Weight 85.20 34.08 8.52 5.94 5.40 9.78 8.52 5.94 4.80 4.70 0.30 0.84 0.82 0.60 0.48 0.82 0.30 0.24 0.24 0.24	G PF: 115 POS: ade: ade: ade: ade: ade: ade: ade: ade	TION: Lat Long 3 5 kn*10 CH/HOUR: % OF TOT. (37.59 15.03 11.65 4.31 3.76 2.62 2.38 2.36 2.22 2.12 2.07 1.93 1.83 1.67 1.46 6.35 0.85 0.79 0.77 0.42 0.40 0.37 0.37 0.36 0.26 0.21 0.19 0.13 0.11 0.11	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:157 6704 GEAR start stop duratio TIME:16:20:26 16:50:11 30 (LOG: 8420:02 8421.69 1.65 FDEPTH: 91 81 Towing dir: 110¢ Wire o Sorted: 31 Kg Total cat PECIES FIORMADIAN STATE STAT	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCo Validi ut: 290 m S; ch: 113.34 CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 4.80 9.78 8.52 5.94 4.80 1.74 4.80 1.72 4.80 1.74 0.96 0.90 0.84 0.82 0.60 0.42 0.30 0.24	G PP: 115 POS: ode: ode:: od.code: ty code: peed: 30 4 CATC /HOUR numbers 318 288 120 96 372 278 32 24 4 66 18 36 6 18 36 6 18 36 6 18 36 6 18 36 6 18 36 6 6 18 4 6 6 18 4 6 6 18 4 6 6 18 4 6 6 6 18 4 6 6 6 6 18 6 6 6 6 18 6 6 6 6 6 7 7 8 7 8 8 8 8 8 8 8 8 8 8	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N 55 E 42 226.68
DR. FRIDTJOF NANSEN DATE:15/ 6/04 GEAR TIME :16:20:26 16:50:11 30 LOG :8420.02 8421.69 1.65 FDEPTH: 91 81 BDEPTH: 91 81 Towing dir: 110¢ Wire o	PROJECT: IC TYPE: BT No n min) Purpose Area cc GearCor Validi ul: 290 m S; ch: 113.3c CATCH. Weight 85.20 34.08 26.40 9.78 8.52 5.94 5.40 5.34 4.80 1.70 4.38 3.10 3.78 3.10 6.10 1.74 0.96 0.90 0.84 0.82 0.60 0.84 0.82 0.60 0.30 0.24 0.18	G PP: 115 POS: adde: bde: adde: adde	TION: Lat Long 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	226.68 226.68

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	PROJECT: IG PE: BT No:15		OJECT STAT	
start stop duration TIME :06:17:11 06:38:36 21 (min			Long 3	
LOG :8507.92 8508.89 0.96 FDEPTH: 118 106	Area code GearCond.	1		
BDEPTH: 118 106	Validity	code:		
Towing dir: 145¢ Wire out:				
Sorted: 38 Kg Total catch:	113.34	CATC	H/HOUR:	323.83
SPECIES	CATCH/HC		% OF TOT.	SAMP
Ariomma bondi	188.14	6223	58.10	
Pentheroscion mbizi Illex coindetii	63.17 11.91	489 411	19.51 3.68	
Dentex angolensis Uranoscopus albesca	10.03	94 171	3.10	2685
Raja miraletus Sepia officinalis hierredda	5.66 4.63	26 111	1.75 1.43	
Priacanthus arenatus Dactylopterus volitans	3.86	69 9	1.19	
Pterothrissus belloci	3.77	26	1.16	
Trichiurus lepturus Brotula barbata	3.34	69 9	1.03 0.98	
Citharus linguatula Parapenaeus longirostris	2.74	94 489	0.85 0.71	
Lepidotrigla cadmani Octopus vulgaris	2.31	34 17	0.71	
Pontinus accraensis Ephippion guttifer	0.94	17 9	0.29	
Saurida brasiliensis	0.60	154	0.19	
Syacium micrurum Gobius sp	0.43	86 51	0.13	
Zeus faber Antennarius sp.	0.26	9	0.08	
Total	323.82		100.00	
	PROJECT:IG PE: BT No:15		OJECT STAT: TION:Lat Long	N 547
TIME :07:58:15 08:28:47 31 (min.			3	0,0
LOG :8516.22 8517.75 1.51 FDEPTH: 62 62	Area code GearCond.	code:	5	
BDEPTH: 62 62 Towing dir: 150¢ Wire out:	Validity 180 m Spee	code:	kn*10	
Sorted: 31 Kg Total catch:	287.42	CATO	H/HOUR:	556.30
SPECIES	CATCH/HC	UR	% OF TOT.	2 SAMP
Brachydeuterus auritus	weight nu 212.52		38.20	
Selene dorsalis Sepia officinalis hierredda	196.84 28.05	1986 383	35.38 5.04	2688
Epinephelus aeneus	16.45 14.98	122	2.96	
Decapterus punctatus Sphyraena guachancho	11.67	70	2.10	
Grammoplites gruveli Raja straeleni	9.41 6.79	401 105	1.69	
Chilomycterus spinosus mauret. Citharus linguatula	6.62 5.75	17 540	1.19	
Squatina oculata	5.42	2 1132	0.97 0.91	
Saurida brasiliensis Lepidotrigla cadmani	4.88	105	0.88	
Pentheroscion mbizi Priacanthus arenatus	4.53	52 35	0.81 0.72	
Ariomma bondi Gobius sp	3.83	122 557	0.69	
Serranus accraensis Parapenaeus longirostris	3.31 2.79	122 366	0.60	
	2.09	17	0.38	
Pagrus caeruleostictus	1 92	17		
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca	1.92	17	0.25	
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupenus prayensis	1.39 1.22 0.87	17 17 52	0.22 0.16	
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii	1.39 1.22 0.87 0.70 0.70	17 17 52 17 139	0,22 0,16 0,13 0,13	
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carolae	1.39 1.22 0.87 0.70 0.70	17 17 52 17 139 52	0.22 0.16 0.13 0.13 0.09	
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindeti Pseudupeneus prayensis Dicologoglossa cuncata Syacium micrurum	1.39 1.22 0.87 0.70 0.70	17 17 52 17 139	0,22 0,16 0,13 0,13	
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuncata Syacium micrurum Lepidotrigla carolae Fistularia petimba	1.39 1.22 0.87 0.70 0.70 0.52	17 17 52 17 139 52 17	0.22 0.16 0.13 0.13 0.09 0.09	
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17	17 17 52 17 139 52 17 105	0.22 0.16 0.13 0.13 0.09 0.09 0.03 100.01	
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/6/04 Start stop duration	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31	17 17 52 17 139 52 17 105	0.22 0.16 0.13 0.13 0.09 0.09 0.03 100.01	
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Beaudipeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 CEAR TY start stop duration TIME :09:45:54 10:15:55 30 (min LOG :8526.03 8527.60 1.56	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31 PROJECT:IG PE: BT No:15	17 17 52 17 139 52 17 105	0.22 0.16 0.13 0.13 0.09 0.09 0.03 100.01 ROJECT STAT: TION:Lat Long	N 550
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Beedupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY start stop duration TIME 109:45:54 10:15:55 30 (min LOG :8526.03 8527.60 1.56 FDEFTH: 39 38 BDEFTH: 39 38	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31 PROJECT:IG PE: BT No:15 O Purpose c Area code GearCond. Validity	17 17 52 17 139 52 17 105	0,22 0.16 0.13 0.13 0.09 0.09 0.03 100.01 COJECT STAT: TION:Lat Long	N 550
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuncata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY: start stop duration TIME:09:45:54 10:15:55 30 (min LOG: 8526.03 8527.60 1.56 FDEPTH: 39 38 BDEFTH: 39 38 Towing dir: 1250 Wire out:	1.39 1.22 0.87 0.70 0.70 0.52 0.17 556.31 PROJECT:IG PPE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee	17 17 52 17 139 52 17 105 PF POSI code: code: code:	0,22 0.16 0.13 0.13 0.09 0.09 0.03 100.01 toject stat TION:Lat Long 3 5	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Beedupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY start stop duration TIME 109:45:54 10:15:55 30 (min LOG :8526.03 8527.60 1.56 FDEFTH: 39 38 BDEFTH: 39 38	1.39 1.22 0.87 0.70 0.70 0.52 0.17 556.31 PROJECT:IG PPE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee	17 17 52 17 139 52 17 105 PF POSI code: code: code:	0,22 0.16 0.13 0.13 0.09 0.09 0.03 100.01 toject stat TION:Lat Long 3 5	N 550
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuncata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY: start stop duration TIME:09:45:54 10:15:55 30 (min LOG: 8526.03 8527.60 1.56 FDEPTH: 39 38 BDEFTH: 39 38 Towing dir: 1250 Wire out:	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee 87.95	17 17 17 52 17 139 52 17 105 PF POSI code: : : : code: d: 30 CATC	0,22 0.16 0.13 0.13 0.09 0.09 0.03 100.01 toject stat TION:Lat Long 3 5	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carclae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 Start stop duration TIME :09:45:54 10:15:55 30 (min LOG :8526.03 8527.60 1.56 FDEPTH: 39 38 BDEPTH: 39 38 Towing dir: 125ø Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee 87.95 CATCH/HC weight nu 102.60	17 17 17 17 17 17 17 17 17 17 17 17 17 1	0,22 0.16 0.13 0.13 0.09 0.09 100.01 0.03 100.01 0.03 100.01 0.03 100.01 0.03 0.03	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carclae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY start stop duration TIME :09:45:54 10:15:55 30 (min LOG :85:26.03 85:27.60 1.56 FDEFTH: 39 38 BDEFTH: 39 38 Towing dir: 125e Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portunus validus Selene dorsalis	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee 87.95 CATCH/HC weight nu 102.60 24.76 18.36	17 17 52 17 139 52 17 105 PF POSI code: code: code: code: di: 30 CATC	0,22 0.16 0.13 0.13 0.09 0.09 0.03 100.01 ROJECT STAT: TION:Lat Long 3 5 kn*10	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carclae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY start stop duration TIME :09:45:54 10:15:55 30 (min LOG :85:26.03 85:27.60 1.56 FDEFTH: 39 38 BDEFTH: 39 38 Towing dir: 125e Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portunus validus Selene dorsalis Sepla officinalis hierredda Sphyraena guachancho	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee 87.95 CATCH/HC Weight mu 102.60 24.76 18.36 10.40 6.60	177 177 179 52 177 139 52 177 105 PFF 6 POSI 106 104 104 104 104 104 104 104 104 104 104	0,22 0,16 0.13 0.13 0.09 0.09 0.03 100.01 COJECT STAT: TION:Lat Long 3 5 kn*10 cH/HOUR: 8 OF TOT. 3	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Beeudupenus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY Search 10:15:55 30 (min LOG :8526.03 8527.60 1.56 FDEPTH: 39 38 BDEPTH: 39 38 BDEPTH: 39 38 Towing dir: 1250 Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portumus validus Selene dorsalis Sepia officinalis hierredda Sphytaena guachancho Saurida brasiliensis Scomberomorus tritor	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31 PROJECTIG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spec 87.95 CATCH/HC Weight nu 102.60 24.76 18.36 10.40 6.60 4.76 2.10	177 177 179 189 189 199 199 199 199 199 199 199 19	0,22 0,16 0.13 0.13 0.09 0.09 0.03 100.01 COJECT STAT: TION:Lat Long 3 5 kn*10 CH/HOUR: 8 OF TOT. 6	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Beedupeneus prayensis Dicologoglossa cuncata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY: start stop duration TIME:09:45:54 10:15:55 30 (min LOG: 85:26.03 85:27.60 1:56 FDEPTH: 39 38 BDEPTH: 39 38 BDEPTH: 39 38 Towing dir: 1250 Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portumus validus Selene dorsalis Sepia officinalis hierredda Sphyraena guachancho Saurida brasiliensis Scomberomorus tritor Parapenaeopsis atlantica Grammoplites gruveli	1.39 1.22 0.87 0.70 0.52 0.52 0.17 556.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee 87.95 CATCH/HC weight nu 102.60 24.76 18.36 10.40 6.60 4.76 2.10 1.46 1.40	17 17 17 17 17 17 17 17 17 17 17 17 17 1	0,22 0.16 0.13 0.13 0.09 0.03 100.01 COJECT STAT: TION:Lat Long 3 5 kn*10 CH/HOUR: 8 OF TOT. 3 14.08 10.44 13.75 2.71 1.19 0.83	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuncata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN GEAR TY: start stop duration TIME :09:45:54 10:15:55 30 (min LCG :85:26.03 85:27:60 1.56 FDEPTH: 39 38 DEPTH: 39 38 Towing dir: 125: Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portunus validus Selene dorsalis Selene dorsalis Sepia officinalis hierredda Sphyraena guachancho Saurida brasiliensis Scomberomorus tritor Parapenaeopsis atlantica	1.39 1.22 0.87 0.70 0.52 0.17 556.31 PROJECT:IG PEP: BT No:15 1 Purpose c Area code GearCond. Validity 140 m Spee 87.95 CATCH/HC weight nu 102.60 24.76 18.36 10.40 6.60 4.76 2.10 1.46 1.40 1.00 0.96	177 177 177 179 189 189 189 189 189 189 189 189 189 18	0,22 0.16 0.13 0.13 0.09 0.03 100.01 0.03 100.01 COJECT STAT TITION:Lat Long 3 5 kn·10 cH/HOUR: 58,33 14.08 10.44 5,91 3.75 2.71 1.19 0.83	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carclae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY start stop duration TIME :09:45:54 10:15:55 30 (min LOG :85:26.03 85:27.60 1.56 FDEPTH: 39 38 BDEPTH: 39 38 Towing dir: 125ø Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portunus validus Sepia officinalis hierreda Sphyraena guachancho Saurida brasiliensis Scomberomorus tritor Parapenaecpsis atlantica Grammoplites gruveli Pseudupeneus prayensis Lagocephalus laevigatus Peneaus notialis	1.39 1.22 0.87 0.70 0.70 0.52 0.17 556.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee 87.95 CATCH/HC weight nu 102.60 24.76 18.36 10.40 6.60 4.76 2.10 1.46 1.40 1.00 0.96 0.46	177 177 179 189 52 177 189 52 177 105 PPF 6 POSSI 104 104 144 146 160 84 100 84	0,22 0.16 0.13 0.13 0.09 0.09 0.03 100.01 ROJECT STAT: TION:Lat Long 3 5 kn*10 CH/HOUR: 8 OF TOT. 0 58.33 14.08 10.44 5.91 1.19 9.83 0.80 0.53	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carclae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY start stop duration TIME :09:45:54 10:15:55 30 (min LOG :85:26.03 85:27.60 1.56 FDEPTH: 39 38 BDEPTH: 39 38 BDEPTH: 39 38 Towing dir: 125e Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portunus validus Sepia officinalis hierreda Sphyraena guachancho Saurida brasiliensis Seomberomus tritor Parapenaeopais atlantica Orammoplites guvueli Pseudupeneus prayensis Lagocephalus laevigatus Penaeus notialis Alloteuthis africana Serranus accraensis	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.17 556.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee 87.95 CATCH/HC Weight nu 102.60 24.76 18.36 10.40 6.60 4.76 2.10 1.46 1.40 0.96 0.46 0.20	177 177 177 177 177 177 177 177 177 177	0,22 0,16 0.13 0.13 0.09 0.09 0.03 100.01 ROJECT STAT: TION:Lat Long 3 5 kn*10 H/HOUR: 8 OF TOT. 3 14.08 10.44 5.91 3.75 2.71 1.19 0.83 0.83 0.57 0.55 0.26 0.15	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuneata Syacium micrurum Lepidotrigla carclae Fistularia petimba Alloteuthis africana Total DR. FRIDTIOF NANSEN DATE:16/ 6/04 GEAR TY STATE CONTROL OF CARCANT CONTROL TIME :09:45:54 10:15:55 30 (min LOC :85:26.03 85:27.60 1.56 FDEPTH: 39 38 BDEFTH: 39 38 BDEFTH: 39 38 BDEFTH: 39 38 BOEFTH: 39 38 Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portunus validus Seelne dorsalis Sepla officinalis hierredda Sphyraena guachancho Saurida brasiliensis Scomberomus tritor Parapenaeopsis atlantica Orammoplites gruueli Pseudupeneus prayensis Lagocephalus laevigatus Penaeus motialis Alloteuthis africana Serranus accraensis Gobius sp Trichiurus lepturus	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.52 0.57 556.31 PROJECT:IG PE: BT No:15 0 Purpose of Area code GearCond. Validity 140 m Spec 87.95 CATCH/HC Weight nu 102.66 24.76 18.36 10.40 6.60 4.76 2.10 1.46 1.40 1.00 0.96 0.26 0.20 0.16	177 177 177 177 177 177 177 177 177 177	0,22 0.16 0.13 0.13 0.09 0.09 0.03 100.01 ROJECT STAT: TION:Lat Long 3 5 kn*10 ch/HOUR: % OF TOT. 3 14.08 10.44 5.91 1.19 0.83 0.87 0.57 0.57 0.57 0.57 0.57 0.57 0.57 0.5	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Braedupeneus prayensis Dicologoglossa cuncata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY: start stop duration TIME:09:45:54 10:15:55 30 (min LOG:8526.03 8527.60 1.56 FDEPTH: 39 38 BDEFTH: 39 38 BDEFTH: 39 38 GOOGLE STORM TOWN OF TOWN O	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.52 0.56.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spec 87.95 CATCH/HC Weight nu 102.60 24.76 18.36 10.40 6.60 4.76 2.10 1.46 1.40 1.00 0.96 0.46 0.20 0.16 0.10 0.10	177 177 177 177 177 179 179 179 179 179	0,22 0.16 0.13 0.13 0.09 0.03 100.01 COJECT STAT: TION:Lat Long 3 5 kn*10 CH/HOUR: 8 OF TOT. 3 14.08 10.44 15.91 1.19 0.83 0.57 0.57 0.57 0.57 0.57 0.57 0.57 0.57	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Pseudupeneus prayensis Dicologoglossa cuncata Syacium micrurum Lepidotrigla carclae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN GEAR TY: start stop duration TIME :09:45:54 10:15:55 30 (min LOG :8526.03 8527.60 1.56 FDEPTH: 39 38 BDEFTH: 39 38 BDEFTH: 39 38 Towing dir: 125e Wire out: Sorted: 35 Kg Total catch: SPECIES Brachydeuterus auritus Portunus validus Selene dorsalis Sepia officinalis hierredda Sphyraena guachancho Surida brasiliensis Scomberomorus tritor Parapenaecpsis atlantica Orammoplites gruveli Pseudupeneus prayensis Lagocephalus laevigatus Penaeus notialis Alloteuthis africana Serranus accraensis Gobius sp Trichiurus lepturus Sardinella maderensis Sepielal ornata Pteroscion peli	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.52 0.52 0.56.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spee 87.95 CATCH/HC Weight nu 102.60 24.76 10.40 6.60 4.76 2.10 1.46 1.40 1.00 0.96 0.46 0.20 0.16 0.10 0.10 0.06	177 177 177 179 189 189 189 189 189 189 189 189 189 18	0,22 0.16 0.13 0.13 0.09 0.03 100.01 0.03 100.01 0.03 100.01 0.03 100.01 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05	N 550 E 441
Pagrus caeruleostictus Pagellus bellottii Uranoscopus albesca Illex coindetii Braedupeneus prayensis Dicologoglossa cuncata Syacium micrurum Lepidotrigla carolae Fistularia petimba Alloteuthis africana Total DR. FRIDTJOF NANSEN DATE:16/ 6/04 GEAR TY: start stop duration TIME:09:45:54 10:15:55 30 (min LOG:8526.03 8527.60 1.56 FDEPTH: 39 38 BDEFTH: 39 38 BDEFTH: 39 38 GOOGLE STORM TOWN OF TOWN O	1.39 1.22 0.87 0.70 0.70 0.52 0.52 0.52 0.56.31 PROJECT:IG PE: BT No:15 0 Purpose c Area code GearCond. Validity 140 m Spec 87.95 CATCH/HC Weight nu 102.60 24.76 18.36 10.40 6.60 4.76 2.10 1.46 1.40 1.00 0.96 0.46 0.20 0.16 0.10 0.10	177 177 177 177 177 179 179 179 179 179	0,22 0.16 0.13 0.13 0.09 0.03 100.01 COJECT STAT: TION:Lat Long 3 5 kn*10 CH/HOUR: 8 OF TOT. 3 14.08 10.44 15.91 1.19 0.83 0.57 0.57 0.57 0.57 0.57 0.57 0.57 0.57	N 550 E 441

DR. FRIDTJOF NANSEN	PROJECT: IG	PRO	DJECT STATIC	N: 566
DATE:16/ 6/04 GEAR T start stop duration	PROJECT: IG YPE: BT No:1	POSI	CION: Lat N	553
				443
TIME :11:27:11 11:57:14 30 (mi LOG :8535.11 8536.75 1.61			5	
FDEPTH: 28 27 BDEPTH: 28 27	GearCond Validity			
Towing dir: 145¢ Wire out	: 120 m Spec	ed: 30 }	tn*10	
Sorted: 37 Kg Total catch	134 00	or mor	. (John H	10 11
Softed: 37 kg 18tal catch	: 134.02	CATC	17 HOUR : 2	20.60
SPECIES				1000000
SPECIES	CATCH/HO weight no	1	OF TOT. C	SAMP
Selene dorsalis	71.68 69.16	686	26.58	2690
Sphyraena guachancho Chloroscombrus chrysurus	69.16 58.04	420 832	25.65 21.52	2692
Brachydeuterus auritus	49.42	806		2691
Portunus validus	5.10	24	1.89	
Caranx hippos Sardinella maderensis	3.22	14 72	1.19	2694
Drepane africana	2.04		0.76	2034
Caranx senegallus	1 96	6	0.73	
Caranx crysos Galeoides decadactylus	1.40			
Scomberomorus tritor	1.38	42 6 6 496 28	0.51	
Pteroscion peli Lolligoncula mercatoris	0.56	6	0.21	
Penaeus notialis	0.42	28	0.16 0.16	
Saurida brasiliensis	0.28	76	0.10	
Trichiurus lepturus Sepiella ornata	0.08	6 14	0.03	
Antennarius sp.	0.08	6	0.03	
Cynoglossus browni	0.08	6	0.03	
Parapenaeopsis atlantica Alectis alexandrinus	0.08	14 8	0.03	
		·		
Total	269.72		100.03	
TIME :14:37:28 15:07:14 30 (m)	n) Purpose o	rode: 3		
TIME :14:37:28 15:07:14 30 (mi LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 620 Wire out	Area code GearCond. Validity	code:	5	
LOG :8559.76 8561.28 1.48 FDEPTH: 78 64	Area code GearCond. Validity : 230 m Spee	cođe: cođe: code:	m*10	41.24
LOG :8559.76 8561.28 1.48 FDEPTH: 78 64 Towing dir: 620 Wire out Sorted: 35 Kg Total catch	Area code GearCond. Validity : 230 m Spee	code: code: code: ed: 30 P	m*10 H/HOUR: 1	
LOG :8559.76 8561.28 1.48 FDEETH: 78 64 BDEPTH: 78 64 Towing dir: 620 Wire out	Area code GearCond. Validity : 230 m Spec : 70.62	code: code: code: cd: 30 P	m*10	
LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 620 Wire out Sorted: 35 Kg Total catch SPECIES Sepia officinalis hierredda	Area code GearCond. Validity: 230 m Spee : 70.62 CATCH/HC weight m 35.20	code: code: code: ed: 30 } CATCH	m*10 H/HOUR: 1	
LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 620 Wire out Sorted: 35 Kg Total catch SPECIES Sepia officinalis hierredda Squatina oculata	Area code GearCond. Validity: 230 m Spec : 70.62 CATCH/HC weight no. 35.20 16.88	code: code: ed: 30 P CATCH DUR 9 imbers 1000	m*10 //HOUR: 1 OF TOT. C 24.92 11.95	
LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 620 Wire out Sorted: 35 Kg Total catch SPECIES Sepia officinalis hierredda	Area code GearCond. Validity: 230 m Spec : 70.62 CATCH/HC weight m 35.20 16.88 14.80	code: code: ed: 30 } CATCH DUR * mbers 1000 20 1236	on*10 //HOUR: 1 OF TOT, C 24.92	
LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 629 Wire out Sorted: 35 Kg Total catch SPECIES Sepia officinalis hierredda Squatina oculata Priacanthus arenatus Saurida brasiliensis Lepidotrigla cadmani	Area code GearCond. Validity: 230 m Spec : 70.62 CATCH/HC weight m 35.20 16.88 14.80 12.24 8.56	CATCH CA	in*10 1/HOUR: 1 6 OF TOT. C 24.92 11.95 10.48 8.67 6.06	
LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 620 Wire out Sorted: 35 Kg Total catch SPECIES Sepia officinalis hierredda Squatina oculata Priacanthus arenatus Saurida brasiliensis Lepidotrigla cadmani Citharus linguatula	Area code GearCond. Validity: 230 m Spec : 70.62 CATCH/HC Weight m 35.20 16.88 14.80 12.24 8.56 7.76	CATCH CATCH CATCH CATCH CATCH CATCH CATCH CATCH CATCH CATCH CATCH 1000 20 1236 2572 192 700	in*10 H/HOUR: 1 OF TOT. C 24.92 11.95 10.48 8.67 6.06 5.49	SAMP
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LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 62p Wire out Sorted: 35 Kg Total catch SPECIES Sepia officinalis hierredda Squatina oculata Friacanthus arenatus Saurida brasiliensis Lepidotrigla cadmani citharus linguatula Pentheroscion mbizi Uranoscopus albesca Alloteuthis africana Serranus accraensis Cymbium pepo Grammoplites gruveli Brachydeuterus auritus Illex coindetii Gobius sp Dentex angolensis Parapenaeus longirostris Chilomycterus spinosus mauret. Syacium miccurum Fistularia petimba Broutla barbata Sphyraena guachancho Lepidotrigla carolae Ariomma bondi Pontinus accreensis Chloroscombrus chrysurus Decapterus punctatus Lophiodes kempi Pseudupeneus prayensıs Trichiurus lepturus Todaropsis eblanae Scyllarides herklotsi Raja miraletus Microchirus frechkopi Blemnius sp. Zeus faber Liocarcinus corrugatus	Area code GearCond. Validity: 230 m Spect Cond. Validity: 230 m Spect CATCH/HK Weight IN State Cond. Validity: 24 8.56 7.76 7.24 6.36 4.00 3.76 2.92 2.80 2.12 1.92 2.80 2.12 1.92 2.60 4.00 0.56 0.52 0.52 0.52 0.52 0.52 0.52 0.52 0.52	e ; 5 ; 5 ; code:	1/HOUR: 1 1/HOUR	SAMP
LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 62p Wire out Sorted: 35 Kg Total catch SPECIES Sepia officinalis hierredda Squatina oculata Friacanthus arenatus Saurida brasiliensis Lepidotrigla cadmani Citharus linguatula Pentheroscion mbizi Uranoscopus albesca Alloteuthis africana Serranus accraensis Cymbium pepo Grammoplites gruveli Brachydeuterus auritus Illex coindetii Gobius sp Dentex angolensis Parapenaeus longirostris Chilomycterus spinosus mauret. Syacium micrurum Fistularia petimba Brotula barbata Sphyraena guachancho Lepidotrigla carclae Aricuma bondi Pontinus accraensis Chloroscombrus chrysurus Decapterus punctatus Lophiodes kempi Pseudupeneus prayensıs Trichiurus lepturus Todaropsis eblanae Scyllarides herklotsii Raja miraletus Microchirus frechkopi Blennius sp. Zeus faber Llocarcinus corrugatus Lagocephalus laevigatus Sphoeroides marmoratus	Area code GearCond. Validity: 230 m Spec 5 code 5 c	e : 5 : 5 : 5 : 5 : 5 : 5 : 5 : 5 : 5 :	Mr-10 MrHOUR: 1 MrHO	SAMP
LCG :8559.76 8561.28 1.48 FDEPTH: 78 64 BDEPTH: 78 64 Towing dir: 62p Wire out Sorted: 35 Kg Total catch SPECIES Sepia officinalis hierredda Squatina oculata Priacanthus arenatus Saurida brasiliensis Lepidotrigla cadmani (itharus linguatula Pentheroscion mbizi Uranoscopus albesca Alloteuthis africana Serrants accraensis Cymbium pepo Grammoplites gruveli Brachydeuterus auritus Illex coindetii Gobius sp Dentex angolensis Parapenaeus longirostris Chilomycterus spinosus mauret. Syacium micrurum Fistularia petimba Brotula barbata Sphyraena guachanch Lepidotrigla carolae Aricuma bondi Pontinus accraensis Chloroscombrus chrysurus Decapterus punctatus Lophiodes kempi Pseudupeneus prayensis Trichiurus lepturus Todaropsis eblanae Scyllarides herklotsii Raja miraletus Microchirus frechkopi Blennius sp. Zeus faber Liocarcinus corrugatus Lagocephalus laevigatus	Area code GearCond. Validity: 230 m Spect Cond. Validity: 230 m Spect CATCH/HC Weight m 35,20 16,88 14,80 12,24 8,56 7,76 7,24 6,36 4,00 3,76 2,92 2,80 2,12 1,92 1,76 1,64 1,48 1,40 1,28 0,92 0,64 0,60 0,56 0,52 0,52 0,52 0,52 0,52 0,52 0,52 0,52	e: :5: code:	1/HOUR: 1 1/HOUR	SAMP

99.99

141.24

Total

Sorted: 41 Kg Total catch: 369.46 CATCH/HOUR: 738.92

SPECIES	CATC	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Illex coindetii	265.50	5148	35.93	
Arionma bondi	258.30	12798	34.96	2696
Squatina oculata	86,40	54	11.69	
Saurida brasiliensis	19.08	3474	2.58	
Priacanthus arenatus	17.28	450	2.34	
Dentex angolensis	16.20	162	2.19	
Todaropsis eblanae	12.60	576	1.71	
Citharus linguatula	11.88	756	1.61	
Lepidotrigla cadmani	9.90	198	1.34	
Fistularia petimba	7.38	54	1.00	
Raja miraletus	6.30	18	0.85	
Sepia officinalis hierredda	4.16	14	0.56	
Trichiurus lepturus	3.78	72	0.51	
Dentex congoensis	3.42	54	0.46	
Lepidotrigla carolae	3.42	180	0.46	
Pterothrissus belloci	2.52	18	0.34	
Uranoscopus albesca	2.52	36	0.34	
Pentheroscion mbizi	2.16	18	0.29	
Lophiodes kempi	1.80	18	0.24	
Gobius sp	1.62	54	0.22	
Sphoeroides pachgaster	1.62	36	0.22	
Octopus vulgaris	1.08	18	0.15	
Pontinus accraensis	0.72	18	0.10	
Syacium micrurum	0.54	90	0.07	
Total	740.18		100.16	

DR. F.					AN	SE	V.							IG						rION:	
DATE:	17/	6	/0	4					- 8	SEAF	TY	PE:	BT I	No:15	PO:	51	TIC	IN:	Lat	N	518
		S	ta	rt		S	op	•	dur	atic	m								Long	E	446
TIME	: 0	6:	34	:5	4	06	43	:32		9 (min	P	urpo	ose co	de:		3				
LOG	:8	64	9.	39		86	19.	79	0.	39		A	rea	code		:	5				
FDEPT	H:		1	52			1	51				G	ear	ond.c	code	:					
BDEPT:	Η:		1	52			1	51				V	alio	dity o	code	:					
	Т	ow	in	g	di	r:	16	00	MI	re c	ut:	450	tn	Speed	1: 31	0	kn'	10			
Sor	t ed		2	5	Ка			To	tal	cat	ch:		75.	80	CA	DC:	H/E	totr	R.	505	-33

SPECIES	CATCH	HOUR	% OF TOT. C	SAMP
	weight	numbers		
Ariomma bondi	233.40	8780	46.19	2697
Sepia officinalis hierredda	31-40	520	6.21	
Antigonia capros	31.40	680	6.21	
Uranoscopus albesca	23.20	480	4.59	
Todaropsis eblanae	21.00	740	4.16	
Pterothrissus belloci	20.40	200	4.04	
Priacanthus arenatus	18.40	200	3.64	
Trichiurus lepturus	16.80	220	3.32	
Pentheroscion mbizi	15.60	100	3.09	
Peristedion cataphractum	13.20	420	2.61	
Dentex angolensis	12.00	120	2.37	
Citharus linguatula	8.80	380	1.74	
Gobius sp	8.00	1820	1.58	
Saurida brasiliensis	6.80	1880	1.35	
Grammoplites gruveli	6.40	140	1.27	
Brotula barbata	6.40	20	1.27	
Lepidotrigla cadmani	5.93	80	1.17	
Raja miraletus	5.00	20	0.99	
Pontinus accraensis	4.80	60	0.95	
Lepidotrigla carolae	3,80	140	0.75	
Octopus vulgaris	3.00	20	0.59	
Pythonichthys microphthalmus	2,80	20	0.55	
Illex coindetii	1.80	80	0.36	
Parapenaeus longirostris	1.60	480	0.32	
Squilla mantis	1.40	20	0.28	
Bembrops grevi	0.80	20	0.16	
Sphoeroides pachgaster	0.60	20	0.12	
Physiculus huloti	0.60	20	0.12	
Total	505.33		100.00	

DATE:		OF NA	AND ETA	1000		JECT: IG		ROJECT STAT		570
DAIR:				GE	AR TYPE:	BT No:	15 POS	ITION:Lat	N	520
		tart		durat	ion			Long	E	451
TIME	:08:	19:07	08:49:04	30	(min)	Purpose	code;	3		
LOG	:865	9.30	8660.81	1.51		Area co	le :	5		
FDEPT	I:	83	81			GearCond	d.code:			
BDEPT	I:	83	81			Validity	code:			
	Tov	ing d	ir: 160ø	Wire	out:220	9 m Sp	eed: 30	kn*10		
	.ed:	41 K		tal c	atch:	41.28	1010120	CH/HOUR:	02220	.56

SPECIES	CATCH	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	16.90	594	20.47	
Sepia officinalis hierredda	13.24	92	16.04	
Arionma bondi	10.10	202	12.23	
Squatina oculata	9.20	4	11.14	
Lepidotrigla cadmani	7.44	166	9.01	
Fistularia petimba	3.06	26	3.71	
Alloteuthis africana	3.04	612	3.68	
Dentex angolensis	2.96	52	3,59	
Citharus linguatula	2.72	174	3.29	
Chilomycterus spinosus mauret.	2.36	8	2.86	
Raja miraletus	1.80	8	2.18	
Saurida brasiliensis	1.46	238	1.77	
Uranoscopus albesca	1.38	20	1.67	
Cymbium pepo	1.30	2	1.57	
Illex coindetii	0.76	10	0.92	
Pentheroscion mbizi	0.76	6	0.92	
Serranus accraensis	0.54	20	0.65	
Pontinus kuhlii	0.52	14	0.63	
Parapenaeus longirostris	0.48	62	0.58	
Syacium micrurum	0.42	80	0.51	
Lophicdes kempi	0.38	4	0.46	
Pseudupeneus prayensis	0.36	4	0.44	
Antigonia capros	0.24	6	0.29	
Grammoplites gruveli	0.22	8	0,27	
Gobius sp	0.22	28	0.27	
Peristedion cataphractum	0.20	4	0.24	
Trichiurus lepturus	0.16	4	0.19	
Lepidotrigla carolae	0.14	8	0.17	
Physiculus huloti	0.12	6	0.15	
Pecten jacobus	0.04	4	0.05	
Scyllarides herklotsii	0.04	2	0.05	
Total	82.56		100.00	

	RIDTJOF		ISEN		P.	ROJEC1	r: IG	P	ROJEC'	r sta	: MOIT	571
DATE:	17/ 6/0	4		GEA	R TYP	E: BT	No:1	5 POS	ITION	Lat	N	522
	sta	rt	stop	durati	on					Long	E	456
TIME	:10:25	:31	10:55:06	30	(min)	Purp	oose	code:	3			
LOG	:8672.	14	8673.60	1.44		Area	cod	e :	5			
FDEPT	4:	48	46			Gear	Cond	.code:				
BDEPTI	1:	48	46			Vali	idity	code:				
	Towin	a di	r: 1400	Wire	out :	140 m	Spe	of . 30	kn*10	Y.		

Sorted: 26 Kg Total catch: 80.54 CATCH/HOUR: 161.08

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus Juv.	109.80	11928	68.16	
Sepiellea ornata juv.	37.80	9120	23,47	
Priacanthus arenatus	3.90	120	2.42	
Parapenaeus longirostris	2.16	234	1.34	
Portunus validus	2.16	6	1.34	
Saurida brasiliensis	0.66	150	0.41	
Grammoplites gruveli	0.54	36	0.34	
Sphyraena guachancho	0.54	18	0.34	
Alloteuthis africana	0.54	306	0.34	
Octopus vulgaris	0.50	14	0.31	
Trichiurus lepturus	0.42	96	0.26	
Lagocephalus laevigatus	0.36	18	0.22	
Citharus linguatula	0.36	30	0.22	
Penaeus notialis	0.34	8	0.21	
Cynoglossus canariensis	0.26	2	0.16	
Epinephelus aeneus	0.18	2	0.11	
Serranus accraensis	0.12	12	0.07	
Lepidotrigla cadmani	0.12	6	0.07	
Selene dorsalis	0.12	42	0.07	
ANTENNARIIDAE	0.08	4	0.05	
Sicyonia sp.	0.06	12	0.04	
Pseudupeneus prayensis	0.06	6	0.04	
Pecten jacobus	0.06	6	0.04	
Total	161.14		100.03	

DR. FR	IDTJOF NA	NSEN		PR	OJECT	: IG	P.	ROJEC	CATE T	: NOI	572
DATE: 1	7/ 6/04		GEA	R TYPE	: BT 1	No:15	POS	ITION	Lat	N	524
	start	stop	durati	on					Long	E	501
TIME	:12:17:55	12:47:46	30	(min)	Purp	ose cod	e:	3			
LOG	:8682.88	8684.51	1.59		Area	code	. :	5			
FDEPTH	: 25	26			Gear	Cond.co	de:				
BDEPTH	: 25	26			Vali	dity co	de:				
	Towing d	ir: 1630	Wire	out: 1	20 m	Speed:	30	kn*1)		

92.91 CATCH/HOUR: 185.82

Total catch:

Sorted: 41 Kg

Trichiurus lepturus
Hemicaranx bicolor
Ilisha africana
Scomberomorus tritor
Sphyraena quachancho
Chloroscombrus chrysurus
Pseudotolithus senegalensis
Caleaides decadactylus
Caranx senegallus
Selene dorsalis
Stromateus fiatola
Trachinotus ovatus
Pseudotolithus typus
Portunus validus
Brachydeuterus auritus
Sepiella ornata
Pisodionophis semicinctus
Pteroscion pell
Penaeus monodon
Aluterus monoceros
Raja miraletus
Penaeus motialis
Sepiellea ornata ju.
Sardinella maderensis
Antennarius sp.
Todaropsis eblanae
Squilla mantis
Lepidotrigla cadmani
Cymoglossus browni
Citharus linguatula
Parapenaeopsis atlantica
Priacanthus arenatus
Total CATCH/HOUR SPECIES % OF TOT. C SAMP Weight
57.90
38.76
25.14
11.34
6.44
5.82
4.80
4.08
3.00
2.78
2.16
2.04
2.02
1.98
1.92
1.86
1.64
1.62
0.90
0.80
0.78
0.74
0.42
0.42
0.42
0.42
0.42
0.12
0.06 numbers 1686 2706 2698 2704 2699 2701 2700 31.16 20. 86 6.10 3. 47 3. 13 53 3. 47 3. 13 3. 13 3. 13 5. 2. 20 2. 58 2. 2. 58 2. 2. 58 1. 61 1. 1.00 1. .07 1. .03 1. .07 1. .03 1. .07 1. .03 0. .88 0. .87 0. .43 0. 402 1218 460 66 66 64 4 2702 185.82 100.00 Total

DR. FR	ID	JOF N	JANSE	N		P.	ROJECT	:IG	P	ROJECT ST	MOITA	1: 573
DATE: 1	71	6/04			GE	AR TYP	E: BT	No:15	POS	ITION: Lat	N	508
		start	s	top	durat.	ion				Lor	g E	506
TIME	:14	:49:3	3 15	:19:26	30	(min)	Purp	ose co	de:	3		
LOG	:87	01.12	87	02.50	1.37		Area	code	:	5		
FDEPTH	:	41		40			Gear	Cond.c	ode:			
BDEPTH		41		40			Vali	dity c	ode:			
	To	wing	dir:	3400	Wire	out:	165 m	Speed	: 30	kn*10		
Sort	24	0000			Wire					kn*10 CH/HOUR:		1.

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	30.20	448	24.82	2708
Parapenaeus longirostris	14.36	5544	11.80	
Sphyraena guachancho	11.88	268	9.76	2707
Sepiella ornata	9.24	1192	7.59	
Pteroscion peli	6.96	1276	5.72	
Dicologoglossa cuneata	6.84	260	5.62	
Grammoplites gruveli	6.52	788	5.36	
Portunus validus	6.12	32	5.03	
Cynoglossus canariensis	5.40	44	4.44	
Saurida brasiliensis	4.76	1440	3.91	
Trichiurus lepturus	3.44	344	2.83	
Selene dorsalis	2.92	1012	2.40	
Penaeus notialis	2.72	232	2.24	
Sepia officinalis hierredda	2.40	4	1.97	
Citharus linguatula	2.00	296	1.64	
Cynoponticus ferox	1.54	2	1.27	
Hemicaranx bicolor	0.84	8	0.69	
Parapenaeopsis atlantica	0.64	248	0.53	
Trachinotus ovatus	0.64	4	0.53	
Galeoides decadactylus	0.48	4	0.39	
Sicyonia galeata	0.36	148	0.30	
Ilisha africana	0.32	8	0.26	
Pythonichthys microphthalmus	0.28	20	0.23	
Serranus accraensis	0.28	64	0.23	
Epinephelus aeneus	0.20	4	0.16	
Antennarius sp.	0.16	4	0.13	
Lagocephalus laevigatus	0.08	4	0.07	
GOBI IDAE	0.08	8	0.07	
Total	121.66		99.99	

	RIDTJCF			PRO	DJECT: IG	P.	ROJECT	STAT	ION:	574
DATE:	7/ 6/04		GE	AR TYPE:	: BT No:1	5 205	ITION:	Lat	N	505
	star		p durat	ion				Long	E	501
TIME	:16:41:	35 17:1	3:42 32	(min)	Purpose .	code:	3			
LOG	:8712.2	2 8713	.72 1.50		Area cod	e :	5			
FDEPTH	1: 6	1	61		GearCond	.code:				
BDEPTH	1: 6	1	61		Validity	code:				
	Towing	dir: 3	33ø Wire	out: 19	5 m Spe	ed: 30	kn-10			

68.55

CATCH/HOUR

Total catch:

Sorted: 32 Kg

SPECIES	CATC	I/HOUR	% OF TOT. C	SAME
	weight	numbers		
Brachydeuterus auritus Juv.	39.38	5021	30.64	
Saurida brasiliensis	21.38	4759	16.63	
Sepia officinalis hierredda	15.98	248	12.43	
Mustelus mustelus	8.06	6	6.27	
Grammoplites gruveli	6.15	300	4.78	
Ariomma bondi	5.70	90	4.43	
Serranus accraensis	3.64	203	2.83	
Lagocephalus laevigatus	3.15	53	2,45	
Citharus linguatula	3.08	229	2.40	
GOBIIDAE	2.59	338	2.02	
Alloteuthis africana	2.44	518	1.90	
Illex coindetii	2.25	26	1.75	
Pentheroscion mbizi	2.06	26	1.60	
Parapenaeus longirostris	1.99	300	1.55	
Syacium micrurum	1.76	240	1.37	
Raja miraletus	1.35	34	1.05	
Pseudupeneus prayensis	1.31	64	1.02	
Lepidotrigla carolae	1.09	86	0.85	
Priacanthus arenatus	0.79	26	0.61	
Epinephelus aeneus	0.66	4	0.51	
Antennarius sp.	0.64	26	0.50	
Scyllarides herklotsii	0.64	53	0.50	
Dicologoglossa cuneata	0.64	15	0.50	
GASTROPODS	0.49	98	0.38	
Seriola carpenteri	0.34	2	0.26	
Sphyraena guachancho	0.26	8	0.20	
Selar crumenophthalmus	0.23	8	0.18	
Chilomycterus spinosus mauret.	0.23	4	0.18	
Microchirus frechkopi	0.19	8	0.15	
Fistularia petimba	0.08	4	0.06	
Sicyonia galeata	0.04	15	0.03	
Total	128.59		100.03	

DR. FF	IDT	JOF 1	IANS	EN		E	ROJEC'	r:IG	P	ROJECT STAT	: NOI:	575
DATE: 1	.8/	6/04			GE	AR TYP	E: BT	No:15	POS	ITION:Lat	N	451
		start			durat					Long	E	459
TIME	:06	:15:3	39 06	5:45:39	30	(min)	Pur	pose c	ode:	3		
LOG	:87	88.39	8	789.87	1.49		Area	a code		5		
FDEPTH	1:	103	3	108			Gea:	rCond.	code:			
BDEPTH	1:	103	3	108			Val:	idity	code:			
	To	wing	dir.	1600	Wire	out:	300 m	Spee	d: 30	kn-10		
Sort	ed:	35	Kra	То	tal c	atch:	15	3.51	CAT	CH/HOUR:	307	0.2

SPECIES	CATCE	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Ariomma bondi	156.80	8336	51.07	2712
Pentheroscion mbizi	28.80	272	9.38	2711
Dentex angolensis	20.56	152	6.70	2710
Epinephelus aeneus	16.10	2	5.24	
Sepia officinalis hierredda	14.80	240	4.82	
Lepidotrigla cadmani	9.60	192	3.13	
Dentex congoensis	8.72	104	2.84	2709
Uranoscopus albesca	8.72	128	2.84	
Citharus linguatula	8.16	512	2.66	
Illex coindetii	6.24	584	2.03	
Squatina oculata	4.30	2	1.40	
Raja miraletus	3.04	24	0.99	
Priacanthus arenatus	3.04	112	0.99	
Lepidotrigla carolae	2.88	144	0.94	
Fistularia petimba	2.88	28	0.94	
Pontinus accraensis	2.64	64	0.86	
Brotula barbata	2.24	6	0.73	
Goboloides sp	1.68	288	0.55	
Sphoeroides pachgaster	1.12	32	0.36	
Syacium micrurum	1.12	112	0.36	
Zeus faber	0.94	2	0.31	
Todaropsis eblanae	0.64	32	0.21	
Grammoplites gruveli	0.64	16	0.21	
Sea urchins (waek spines)	0.56	48	0.18	
Microchirus frechkopi	0.24	8	0.08	
Lophiodes kempi	0.24	24	0.08	
Venus verrucosa	0.16	8	0.05	
Scyllarides herklotsii	0.08	8	0.03	
Saurida brasiliensis	0.08	16	0.03	
Total	307.02		100.01	

start stop durati TIME :08:24:53 08:55:23 31	(min) Purpose	5 POSITI	ECT STATION ON:Lat N Long E	454	DR. FRIDTJOF N DATE:18/ 6/04 start TIME :13:12:0
LOG :8801.04 8802.56 1.51 FDEPTH: 69 69 BDEPTH: 69 69	GearCond Validity	.code:			LOG :8835.20 FDEPTH: 39 BDEPTH: 39
Towing dir: 150¢ Wire Sorted: 42 Kg Total ca				80.57	Towing Scrted: 37
SPECIES	CATCH/H	DUR %	OF TOT. C	SAMP	SPECIES
	weight n	umbers		Seute	
Sepia officinalis hierredda Brachydeuterus auritus	21.85 17.81	333 1572	27.12 22.11	2714	Brachydeuterus aus Selene dorsalis
Ariomma bondi	6.74	205	8.37	2713	Chloroscombrus chi
Lepidotrigla carolae Cymbium cymbium	4.03	172 6	5.00 4.80		Scomberomorus trit Portunus validus
Saurida brasiliensis	3.81	832	4.73	2715	Sphyraena guachano
Serranus accraensis	3.19	116	3.96		Trichiurus lepturu
Pitharus linguatula Alloteuthis africana	2.48 2.40	178 619	3.08		Octopus vulgaris Selar crumenophtha
Illex coindetii	1.82	23	2.26		Grammoplites gruve
grammoplites gruveli	1.68	89	2.09		Aluterus monoceros
Fistularia petimba Priacanthus arenatus	1.41	31 45	1.75		Sepiella ornata Sardinella maderer
Syacium micrurum	1.22	215	1.51		Alectis alexandrir
Venus verrucosa	1.14	45 108	0.89		Cynoglossus canari
Goboloides sp Octopus vulgaris	0.68	10	0.84		Penaeus notialis Scyllarides herklo
Pentheroscion mbizi	0.54	6	0.67		Lagocephalus laevi
Epinephelus aeneus Parapenaeus longirostris	0.52 0.48	4 56	0.65		Sicyonia galeata Saurida brasiliens
Raja miraletus	0.41	14	0.51		Gobius sp
Dentex angolensis	0.31	4	0.38		Antennarius sp.
Jranoscopus albesca Pseudupeneus prayensıs	0.29	6 8	0.36		Total
dicrochirus frechkopi	0.23	12	0.29		105.000
Sphyraena guachancho	0.19 0.15	4 10	0.24		
Cardita ajar Scyllarides herklotsii	0.15	15	0.19		
Sphoeroides marmoratus	0.15	12	0.19		
Philomycterus spinosus mauret. Sepiella ornata	0.14 0.12	2 89	0.17 0.15		
liocarcinus corrugatus	0.10	12	0.12		
Dicologoglossa cuneata	0.06	2 8	0.07		DR. FRIDTJOF N
Pontinus accraensis Pecten jacobus	0.04	4	0.05		DATE: 18/ 6/04
Lophiodes kempi	0.02	2	0.02		start
Blennius normani Potal	80.47	2	99.88		TIME :14:55:4 LOG :8845.02 FDEPTH: 62 BDEPTH: 62
					Towing Sorted: 22
	PROJECT:IG R TYPE: BT No:1			457	SPECIES
start stop durati TIME :10:23:52 10:53:51 30		code: 3	Long E	510	Mustelus mustelus Brachydeuterus aum
LOG :8812.91 8814.50 1.58	Area cod	e : 5			Saurida brasiliens
FDEPTH: 42 42 BDEPTH: 42 42	GearCond Validity				Selar crumenophtha Sepia officinalis
Towing dir: 160¢ Wire			*10		Cymbium pepo
Sorted: 30 Kg Total ca	rah. 50.03	CATCH/	HOLD 16	20.24	Parapenaeus longir
Sorted: 30 Kg Total ca	icen: 50.03	CAICH	noon: 10	00.06	Alloteuthis africa Grammoplites gruve
				2000	Syacium micrurum
	CATCH/H	CUR *	OF TOT. C	SAMP	Raja miraletus 'Unidentfied crab'
PECIES		umbers			
	weight n 36.08	2238	36.06	2716	
Brachydeuterus auritus Frichiurus lepturus	weight n 36.08 24.66	2238 1422	24.65	2724	Serranus accraensi Fistularia petimba
Brachydeuterus auritus Prichiurus lepturus Belene dorsalis	weight n 36.08 24.66 14.02	2238 1422 170	24.65 14.01		Fistularia petimba Lepidotrigla cadma
Brachydeuterus auritus Frichiurus lepturus Selene dorsalis Sphyraena guachancho Sepia officinalis hierredda	weight n 36.08 24.66 14.02 4.38 3.16	2238 1422 170 56 30	24.65 14.01 4.38 3.16	2724	Fistularia petimba Lepidotrigla cadma Trichiurus lepturu Citharus linguatul
srachydeuterus auritus Prichiurus lepturus Belene dorsalis Sphyraena guachancho Bepia officinalis hierredda Parapenneus longirostris	weight n 36.08 24.66 14.02 4.38 3.16 2.50	2238 1422 170 56 30 538	24.65 14.01 4.38 3.16 2.50	2724	Fistularia petimba Lepidotrigla cadmu Trichiurus lepturu Citharus linguatul Scyllarides herklo
orachydeuterus auritus richiurus lepturus relene dorsalis phyraena guachancho repia officinalis hierredda araponaeus longirostris seudotolithus senegalensis	weight n 36.08 24.66 14.02 4.38 3.16	2238 1422 170 56 30	24.65 14.01 4.38 3.16 2.50 1.90	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus leptur Citharus linguatul Scyllarides herklc Priccanthus arenat
Brachydeuterus auritus Frichiurus lepturus Belone dorsalis Belone guachancho Sepia officinalis hierredda Parapenaeus longirostris Pseudotolithus senegalensis Penaeus notialis Pentheroscion mbizi	weight n 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62	2238 1422 170 56 30 538 6 102 50	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus leptur Citharus linguatul Scyllarides herkl Priacanthus arena Lagocephalus laevi Pottunus validus
Brachydeuterus auritus Prichiurus lepturus Belene dorsalis Belphyraena guachancho Bepia officinalis hierredda Parapenaeus longirostris Beuddotolithus senegalensis Penaeus notialis Pentheroscion mbizi Paranx hippos	weight n 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.56 1.46	2238 1422 170 56 30 538 6 102 50	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus leptur Citharus linguatul Scyllarides herkic Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii
Brachydeuterus auritus Frichiurus lepturus Felene dorsalis Felene dorsalis Felene succhancho Felene succhancho Felene succhancho Felene succhancho Fenaeus notialis Fenaeus notialis Fentheroscion mbizi Faranx hippos Fortunus validus	weight n 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62	2238 1422 170 56 30 538 6 102 50	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus leptur Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laev; Portunus validus Calappa pelii Octopus vulgaris
Brachydeuterus auritus Prichiurus lepturus Belene dorsalis Bephyraena guachancho Bepia officinalis hierredda Parapenaeus longirostris Brendeus notialis Bentheroscion mbizi Paranx hippos Bortunus validus Lagocephalus laevigatus Lepidotrigla carolae	weight n 36.08 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.36 1.46 1.40 1.22 1.16	2238 1422 170 56 30 538 6 102 50 4 6	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturu Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S
Brachydeuterus auritus Frichiurus lepturus Felene dorsalis Felene dorsalis Felene officinalis hierredda Ferapenaeus longirostris Feraudotolithus senegalensis Fenaeus notialis Fenaeus notialis Ferances mobizi Ferarus hippos Fortunus validus Lagocephalus laevigatus Lepidotrigla carolae Friacanthus arenatus	weight n 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.46 1.40 1.22 1.16 1.12 0.86	2238 1422 170 56 30 538 6 102 50 4 6	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturi Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blemnius normani
Brachydeuterus auritus Prichiurus lepturus Selene dorsalis Selene dorsalis Selene dorsalis Sephyraena guachancho Sepia officinalis hierredda Parapenaeus longiroskris Pseudotolithus senegalensis Penneus notialis Penneus notialis Penneus notialis Pennerscion mbizi Paranx hippos Portunus validus Lagocephalus laevigatus Lepidotrigla carolae Priacanthus arenatus Ilisha africana Brotula barbata	weight n 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.56 1.46 1.40 1.22 1.16 1.12 0.86	2238 1422 170 56 30 538 6 102 50 4 6 4 6 14 50	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus leptura Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani Chloroscombrus chi Microchirus frechi
Srachydeuterus auritus Prichiurus lepturus Selone dorsalis Selone dorsalis Selone suachancho Sepia officinalis hierredda Parapenaeus longirostris Pseudotolithus senegalensis Psenaeus notialis Pentheroscion mbizi Paranx hippos Portunus validus Lagocephalus laevigatus Lepidotrigla carolae Priacanthus arenatus Hisha africana Brotula barbata Baja miraletus	weight 36.08 36.08 36.08 44.66 14.02 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.42 1.16 1.12 0.86 0.70 0.56	2238 1422 170 56 30 538 6 102 50 4 6 4 6 14 50 10	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.22 1.16 1.12 0.86 0.70	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturu Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coidetii C R A B S Blennius normani Chloroscombrus che Microchirus frech Sphoeroides marmoi
Brachydeuterus auritus Frichiurus lepturus Felene dorsalis Felene dorsalis Felene servata servata Felene servat	weight n 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.56 1.46 1.40 1.22 1.16 1.12 0.86	2238 1422 170 56 30 538 6 102 50 4 6 4 6 14 50	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturu Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani Chloroscombrus chi Microchirus frechi Sphoeroides marmou Bathygobius pagans
Brachydeuterus auritus Frichiurus lepturus Felene dorsalis Felene dorsalis Felene dorsalis Felene ficinalis hierredda Ferarapenaeus longirostris Fendeutolithus senegalensis Fenneus notialis Fentheroscion mbizi Feraran hippos Fortunus validus Lagocephalus laevigatus Lepidotrigla carolae Friacanthus arenatus Flisha Africana Frictula barbata Fisha miraletus Fisha diricana Friadilla maderensis Fitharus linguatula Fitherus linguatula Fitherus linguatula Fitherus linguatula	weight n 36.08 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.36 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.26 0.24	2238 1412 170 56 30 538 6 102 50 4 6 14 50 10 14 6 4 6	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 0.70 0.56 0.44 0.26	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturu Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus velidus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blemnius normani Chloroscombrus che Microchirus frechi Sphoeroides marmon Bathygobius pagana Lepidotrigla carol Lophiodes kempi
Srachydeuterus auritus Prichiurus lepturus Pelene dorsalis Pelene dorsalis Pelene dorsalis Pelene afficinalis hierredda Perapenaeus longirostris Peseudotolithus senegalensis Penaeus notialis Pentheroscion mbizi Peranx hippos Portunus validus Pertunus validus Periacanthus arenatus Priacanthus ilinguatula Priemmoplitus gruveli	weight n 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.26	2238 1422 170 56 300 538 6 102 50 4 6 4 50 10 14 50 10 14 6 44 20 10	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.26	2724	Fistularía petimbe Lepidotrigla cadme Lepidotrigla cadme Trichiurus leptur Citharus linguatul Scyllarides herkic Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blemníus normani Chloroscombrus chi Microchirus Frechk Sphoeroides marmor Bathygobius pagame Lepidotrigla carol Lophiodes kempi Sicyonia galeata
Brachydeuterus auritus Frichiurus lepturus Felene dorsalis Felene dorsalis Felene dorsalis Felene ficinalis hierredda Ferarapenaeus longirostris Fentheroscion mbizi Ferarara hippos Fortunus validus Ferarara hippos Fortunus validus Ferarararararararararararararararararara	weight n 36.08 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.36 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.26 0.24	2238 1412 170 56 30 538 6 102 50 4 6 14 50 10 14 6 4 6	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 0.70 0.56 0.44 0.26	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturu Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blemnius normani Chloroscombrus chi Microchirus frechh Sphoeroides marmor Bathygobius pagane Lepidotrigla carol Lophiodes kempi
Brachydeuterus auritus Frichiurus lepturus Felene dorsalis Felene dorsalis Felene dorsalis Felene dorsalis hierredda Felene se senegalensis Feseudotolithus senegalensis Feseudotolithus senegalensis Feneneus notialis Fentheroscion mbizi Feranux hippos Fortunus validus Felene senegalensis Feranux hippos Fortunus validus Felene senegalensis Feranus validus Felene senegalensis Feranus Felene Felene senegalensis Felene senegale	weight m 36.08 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.24 0.24 0.24 0.16 0.14 0.10	2238 1422 170 56 30 538 6 102 50 4 6 14 50 10 14 6 44 20 10 4 6 10	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.24 0.24 0.16 0.14 0.10	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturu Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blemnius normani Chloroscombrus chr Microchirus frech Sphoetoides marmor Bathygobius pagane Lepidotrigla carol Lophiodes kempi Sicyonia galeata Dentex angolensis Ariomma bondi Pontocaris lacazei
Brachydeuterus auritus Prichiurus lepturus Selene dorsalis Sphyraena guachancho Sepia officinalis hierredda Parapenaeus longirostris Pseudotolithus senegalensis Peenaeus notialis Pentheroscion mbizi Caranx hippos Portunus validus Lagocephalus laevigatus Lepidotrigla carolae Priacanthus arenatus Ilisha africana Brotula barbata Raja miraletus Sardinella maderensis Citharus linguatula Antennarius sp. Drammoplites gruveli Cpinephelus aeneus Dctopus vulgaris Serramus cabrilla Pseudupeneus prayensis Sarduriah Prasiliensis	weight n 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.36 1.46 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.26 0.24 0.16 0.14 0.10 0.06	2238 1422 170 56 30 538 6 102 50 4 6 14 50 10 14 6 44 20 10 4 6 10 4	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.26 0.24 0.14 0.10 0.06	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturu. Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blemnius normani Chloroscombrus chi Microchirus frechi Sphoeroides marmoro Bathygobius pagane Lepidotrigla carol Lophiodes kempi Sicyonia galeata Dentex angolensis Ariomma bondi Pontocaris lacazei Pontinus accraensi
Brachydeuterus auritus Trichiurus lepturus Selene dorsalis Selene dorsalis Selene dorsalis Selene dorsalis Sephyraena guachancho Sepia officinalis hierredda Parapenaeus longirostris Pseudotolithus senegalensis Psenaeus notialis Psenaeus notialis Pentheroscion mbizi Caranx hippos Portunus validus Lagocephalus laevigatus Lepidotrigla carolae Priacanthus arenatus Tlisha africana Brotula barbata Raja miraletus Sardinella maderensis Sitharus linguatula Antennarius sp. Crammoplites gruveli Epinephelus aeneus Dctopus vulgaris Serramus cabrilla Bseudupeneus prayensis Saurida brasiliensis	weight m 36.08 36.08 24.66 14.02 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.24 0.24 0.24 0.16 0.14 0.10	2238 1422 170 56 30 538 6 102 50 4 6 14 50 10 14 6 44 20 10 4 6 10	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 1.12 0.86 0.70 0.56 0.44 0.24 0.24 0.16 0.14 0.10	2724	Fistularia petimbe Lepidotrigla cadme Trichiurus lepturu Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blemnius normani Chloroscombrus chr Microchirus frech Sphoetoides marmor Bathygobius pagane Lepidotrigla carol Lophiodes kempi Sicyonia galeata Dentex angolensis Ariomma bondi Pontocaris lacazei
Brachydeuterus auritus Trichiurus lepturus Selene dorsalis Selene dorsalis Selene dorsalis Selene dorsalis Sephyraena guachancho Sepia officinalis hierredda Parapenaeus longirostris Pseudotolithus senegalensis Psenches notialis Pentheroscion mbizi Caranx hippos Portunus validus Lagocephalus laevigatus Lepidotrigla carolae Priacanthus arenatus Tlisha africana Brotula barbata Raja miraletus Sardinella maderensis Citharus linguatula Antennarius sp. Drammoplites gruveli Epinephelus aeneus Dctopus vulgaris Serramus Cabrilla	weight	2238 1422 170 56 30 538 6 102 50 4 6 14 50 10 14 6 10 10 10 10 10 10 10 10	24.65 14.01 4.38 3.16 2.50 1.90 1.62 1.56 1.46 1.40 1.22 1.16 0.70 0.56 0.44 0.26 0.24 0.14 0.10 0.06	2724	Fistularia petimbe Lepidotrigla cadme Lepidotrigla cadme Trichiurus lepturu Citharus linguatul Scyllarides herkle Priacanthus arenat Lagocephalus laevi Portunus validus Calappa pelii Octopus vulgarıs Illex coindetii C R A B S Blemnius normani Chloroscombrus chr Microchirus frechh Sphoeroides marmor Bathygobius pagane Lepidotrigla carol Lophiodes kempi Sicyonia galeata Dentex angolensis Ariomma bondi Pontocaris lacazei Pontinus accraensi Decapterus punctat

DR. FRIDTJOF NANSEN DATE:18/ 6/04 GEAR TY start stop duration	PROJECT: IG	PF 15 POSI	OJECT STAT	ICN: 578 N 439
start stop duration TIME :13:12:01 13:43:01 31 (mir			Long	E 519
TIME :13:12:01 13:43:01 31 (mir LOG :8835.20 8836.90 1.70	1) Purpose	code:	5	
FDEPTH: 39 40		d.code:	<i>-</i>	
	Validit	y code:		
Towing dir: 337¢ Wire out:	165 m Sp	eed: 3	kn*10	
Scrted: 37 Kg Total catch:	70.37	CATO	TH/HOUR:	136.20
SPECIES	weight	numbers	% OF TOT.	
Brachydeuterus auritus	74.52	3172	54.71 15.07	2718
Selene dorsalis Chloroscombrus chrysurus	20.52	188 145	15.07	2720 2721
Scomberomorus tritor	20.52 15.97 9.48 2.94	31	6 06	2719
Portunus validus Sphyraena guachancho	2.94	12	2.16	
Trichiurus lepturus	1.99	157		
Octopus vulgaris	1.94	2	1.42	
Selar crumenophthalmus Grammoplites gruveli	0.97	10	0.95	
Aluterus monoceros	0.81 0.77 0.64	2	0.59	
Sepiella ornata	0.77	145	0.57	
Sardinella maderensis Alectis alexandrinus	0.64	6	0.47	
Cynoglossus canariensis	0.52	145 6 2 2 14 139 120 29	0.38	
Penaeus notialis Scyllarides herklotsii	0.31	14	0.23	
Lagocephalus laevigatus	0.25	139	0.18	
Sicyonia galeata	0.08	29 54	0.06	
Saurida brasiliensis Gobius sp	0.08	54	0.06	
Antennarius sp.	0.04	12 4	0.03	
mak al				
Total	136.21		99.99	
DR. FRIDTJOF NANSEN DATE:18/ 6/04 GEAR TY	PROJECT: IG	PR 15 POSI	OJECT STAT:	ION: 579 N 438
DR. FRIDTJOF NANSEN DATE:18/6/04 GEAR TY start stop duration TIME :14:55:42 15:25:23 30 (min LOG :8845.02 8846.55 1.48 FDEPTH: 62 62	Area co GearCon	de :	OJECT STAT: TION:Lat Long 3 5	ION: 579 N 438 E 515
LOG :8845.02 8846.55 1.48	Area co- GearCon- Validit	de : d.code: y code:	5	ION: 579 N 438 E 515
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62	Area co GearCon Validit 205 m Sp	de : d.code: y code: eed: 3	5 kn*10	ION: 579 N 438 E 515
LOG :8845.02 8846.55 1.48 PDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337¢ Wire out:	Area co GearCon Validit 205 m Sp 22.52	de : d.code: y code: eed: 3 CATC	kn*10 H/HOUR:	45.04
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337ø Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus	Area co- GearCon- Validit 205 m Sp- 22.52 CATCH// Weight 1	de : d.code: y.code: eed: 3 CATC HOUR numbers	kn*10 H/HOUR:	45.04 SAMP
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus	Area co- GearCon- Validit 205 m Sp- 22.52 CATCH// Weight 1	de : d.code: d.code: gy code: eed: 3 CATC HOUR numbers	5 kn*10 H/HOUR: % OF TOT. 0	45.04 SAMP 2723
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337ø Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis	Area co- GearCon- Validit: 205 m Sp- 22.52 CATCH/i weight 17.70 6.40 6.08	de : d.code: y code: eed: 3 CATC HOUR numbers 2 1028	% OF TOT. C	45.04 SAMP 2723
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda	Area co- GearCon- Validit: 205 m Sp- 22.52 CATCH/Weight 17.70 6.40 6.08 3.46 2.14	de : d.code: d.code: y code: eed: 3 CATC HOUR numbers 2 1028 1308 26 152	% OF TOT. C 17.10 14.21 13.50 7.68	45.04 SAMP 2723
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 fo2 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo	Area con GearCon Validit: 205 m Sp. 22.52 CATCH// weight 17.70 6.40 6.08 3.46 2.14 2.04	de : d.code: d.code: y code: eed: 3 CATC HOUR numbers 2 1028 1308 26 152	% OF TOT. C 17.10 14.21 13.50 7.68	45.04 SAMP 2723
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana	Area co- GearCon- Validit; 205 m Sp- 22.52 CATCH/I Weight 17.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64	dde : dd code: dd code: y code: eed: 3 CATC HOUR humbers 2 1028 1308 26 152 2 244 3700	% Nr*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 3.91	45.04 SAMP 2723
LCG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli	Area co- GearCon- Validit: 205 m Sp- 22.52 CATCH/Weight 17.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64	dde : dd code: y code: eed: 3 CATC HOUR humbers 2 1028 1308 26 152 2 244 370 104	% OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37	45.04 SAMP 2723
LOG: 8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus	Area co- GearCom- Validit: 205 m Sp- 22.52 CATCH// weight 17.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52	de : d. code: y code: eed: 3 CATC HOUR humbers 2 1028 1308 26 152 2 2444 370 104	% OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66	45.04 SAMP 2723
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Undentfied crab'	Area co GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 8.3.46 2.14 2.04 1.76 1.64 1.52 1.40 1.120	de : d. code: y code: y code: eed: 3 CATC HOUR humbers 2 1028 1308 26 152 2 2444 370 104 8 184	% kn*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66	45.04 SAMP 2723
LCG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 0.90	de , d.code: de , d.code: de , d.code: de , d.code: y code: ged: 3	% Nn*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00	45.04 SAMP 2723
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotripla cadmani	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 0.90 0.90	de , d.code: de , d.code: de , d.code: de , d.code: y code: ged: 3	% Nn*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: Species Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus	Area coo GearCom Validit: 205 m Sp. 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 6.214 2.04 1.76 1.64 1.52 1.40 0.90 0.90 0.76 0.76	de , d.code : de , d.code : de , d.code : de ,	% OF TOT. (14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: Species Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 0.90 0.90	de , d.code: de , d.code: de , d.code: de , d.code: y code: ged: 3	% Nn*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Friscaltus arenatus	Area co- GearCom Validit: 205 m Sp 22.52 CATCH/Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 0.50 0.90 0.90 0.76 0.74 0.68 0.58	de d	% kn*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.64 1.51 1.64 1.51 1.64 1.65 1.	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: Species Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Legocephalus laevigatus	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 1.20 0.90 0.82 0.76 0.74 0.68 0.58 0.58	de d	% Nn*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 2.169 1.64 1.51 1.29	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsis Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 0.90 0.90 0.82 0.76 0.74 0.68 0.58 0.58 0.38 0.36 0.36	de d	% kn*10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.6	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Species Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotripla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris	Area co- GearCom Validit: 205 m Sp- 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 0.90 0.82 0.74 0.90 0.82 0.75 0.78 0.58 0.48 0.58 0.38 0.38 0.38	de d	% OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.64 1.51 1.29 1.07 0.80 0.71	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.52 1.40 0.90 0.90 0.90 0.80 0.76 0.74 0.68 0.58 0.58 0.48 0.36 0.32 0.32 0.32	de d	% kn*10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 4.75 4.53 2.00 2.00 1.82 1.69 1.69 1.69 1.69 1.09 1.00 1.0	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotripla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 0.90 0.90 0.90 0.90 0.76 0.74 0.68 0.48 0.38 0.48 0.38 0.48 0.32 0.32 0.32 0.32 0.32 0.32 0.26 0.24 0.22	de d	% kn·10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.69 1.64 1.29 1.07 0.80 0.71 0.71 0.58 0.53	45.04 SAMP 2723 2722
LCG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 1.14 0.90 0.90 0.76 0.74 0.68 0.58 0.58 0.48 0.36 0.32 0.32 0.32 0.32 0.24 0.22 0.20	de d	% Nn*10 H/HOUR: * OF TOT. (17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 0.00 1.82 1.69 1.64 1.51 1.29 1.07 0.80 0.71 0.71 0.71 0.58 0.53 0.49	45.04 SAMP 2723 2722
LCG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Portunus validus Calappa pelii Octopus vulgaris Il CR A B S Blennius normani Chloroscombrus chrysurus Microchirus frechkopi Spheeroides marmoratus	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 2.14 2.04 1.76 1.69 0.90 0.90 0.82 0.76 0.74 0.68 0.58 0.58 0.48 0.36 0.32 0.26 0.24 0.22 0.20 0.18	de d	% kn·10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.69 1.64 1.29 1.07 0.80 0.71 0.71 0.58 0.53	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotripla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani Chloroscombrus chrysurus Microchirus frechkopi Sphoeroides marmoratus Bathygobius paganellus	Area co- GearCom Validit: 205 m Sp 22.52 CATCH/Weight 17.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 0.90 0.90 0.82 0.76 0.74 0.68 0.48 0.38 0.48 0.32 0.32 0.32 0.32 0.32 0.32 0.32 0.32	de d	% kn*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 2.66 2.53 3.91 2.169 1.64 1.51 1.29 1.07 0.80 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.7	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDDFTH: 62 62 BDEFTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani Chloroscombrus chrysurus Microchirus frenkopi Sphoeroides marmoratus Bathygobius paganellus Lepidotrigla cardae	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 1.20 1.14 0.90 0.90 0.82 0.76 0.74 0.68 0.58 0.32 0.32 0.32 0.32 0.32 0.26 0.24 0.22 0.20 0.18	de d	% kn*10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.69 1.64 1.51 1.29 1.69 1.61 1.51 1.29 1.69 1.60 0.71 0.58 0.53 0.40 0.71 0.58 0.53 0.40 0.31 0.27	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus acraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani Chloroscombrus chrysurus Microchirus frechkopi Sphoeroides marmoratus Bathygobius paganellus Lepidotrigla cardae Lophiodes kempi Sicyonia galeata	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.75 1.64 1.52 1.40 0.90 0.90 0.90 0.90 0.76 0.74 0.68 0.58 0.58 0.38 0.38 0.32 0.22 0.20 0.18 0.14 0.12 0.20 0.18 0.14 0.10 0.08	de d.	% kn*10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 4.75 4.53 2.00 2.00 1.82 1.69 1.69 1.69 1.69 1.71 0.71 0.71 0.71 0.71 0.71 0.73 0.44 0.40 0.41 0.47 0.22 0.31	45.04 SAMP 2723 2722
LCG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Catappa pelii Octopus vulgaris Illex ocindetii C R A B S Blennius normani Chloroscombrus chrysurus Microchirus frechkopi Sphoeroides marmoratus Bathygobius paganellus Lepidotrigla carolae Lophiodes kempi Sicyonia galeata Dentex angolensis	Area coo GearCom Validit: 205 m Sp. 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 6.214 2.04 1.76 1.64 1.76 1.64 1.52 1.40 0.90 0.82 0.76 0.74 0.58 0.58 0.36 0.32 0.26 0.24 0.22 0.20 0.18 0.12 0.10 0.88 0.18 0.10 0.08 0.06 0.00 0.00 0.00 0.00 0.00 0.0	de d	% Nn*10 H/HOUR: % OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 6.2.53 2.00 0.80 0.71 0.78 0.79 0.80 0.71 0.58 0.53 0.49 0.44 0.40 0.31 0.27 0.22 0.18 0.13 0.09	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotrigla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsii Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani Chloroscombrus chrysurus Microchirus frechkopi Sphoeroides marmoratus Bathygobius paganellus Lepidotrigla carolae Lophiodes kempi Sicyonia galeata Dentex angolensis Ariomma bondi	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.75 1.64 1.52 1.40 0.90 0.90 0.90 0.90 0.76 0.74 0.68 0.58 0.58 0.38 0.38 0.32 0.22 0.20 0.18 0.14 0.12 0.20 0.18 0.14 0.10 0.08	de d	% kn·10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.69 1.69 1.07 0.80 0.71 0.71 0.78 0.80 0.71 0.53 0.49 0.44 0.40 0.31 0.27 0.22 0.18	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotripla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsis Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani Chloroscombrus chrysurus Microchirus frechkopi Spheeroides marmoratus Beathygobius paganellus Lepidotrigla carolae Lophiodes kempi Sicyonia galeata Dentex angolensis Ariorma bondi Pontinus accraensis	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 1.20 1.14 2.04 0.98 0.76 0.74 0.68 0.38 0.48 0.38 0.48 0.32 0.22 0.20 0.12 0.12 0.10 0.08	de d	% kn·10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.69 1.61 1.29 1.07 0.80 0.71 0.71 0.58 0.53 0.49 0.44 0.40 0.31 0.27 0.22 0.18 0.18	45.04 SAMP 2723 2722
LCG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 3370 Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: Second to the secon	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 1.20 1.14 0.90 0.90 0.82 0.76 0.74 0.68 0.32 0.32 0.32 0.32 0.32 0.32 0.32 0.32	de d	% kn*10 #/HOUR: * OF TOT. C 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 6.2.53 2.00 0.00 1.82 2.00 1.82 1.69 1.64 1.51 1.29 1.07 0.80 0.71 0.71 0.53 0.49 0.44 0.40 0.31 0.27 0.22 0.18 0.18 0.13 0.19 0.09 0.09 0.04	45.04 SAMP 2723 2722
LOG :8845.02 8846.55 1.48 FDEPTH: 62 62 BDEPTH: 62 62 Towing dir: 337e Wire out: Sorted: 22 Kg Total catch: Sorted: 22 Kg Total catch: SPECIES Mustelus mustelus Brachydeuterus auritus Saurida brasiliensis Selar crumenophthalmus Sepia officinalis hierredda Cymbium pepo Parapenaeus longirostris Alloteuthis africana Grammoplites gruveli Syacium micrurum Raja miraletus 'Unidentfied crab' Serranus accraensis Fistularia petimba Lepidotripla cadmani Trichiurus lepturus Citharus linguatula Scyllarides herklotsis Priacanthus arenatus Lagocephalus laevigatus Portunus validus Calappa pelii Octopus vulgaris Illex coindetii C R A B S Blennius normani Chloroscombrus chrysurus Microchirus frechkopi Spheeroides marmoratus Beathygobius paganellus Lepidotrigla carolae Lophiodes kempi Sicyonia galeata Dentex angolensis Ariorma bondi Pontinus accraensis	Area co- GearCom Validit: 205 m Sp 22.52 CATCH// Weight 7.70 6.40 6.08 3.46 2.14 2.04 1.76 1.64 1.52 1.40 1.20 1.14 2.04 0.98 0.76 0.74 0.68 0.38 0.48 0.38 0.48 0.32 0.22 0.20 0.12 0.12 0.10 0.08	de d	% kn·10 H/HOUR: 17.10 14.21 13.50 7.68 4.75 4.53 3.91 3.64 3.37 3.11 2.66 2.53 2.00 2.00 1.82 1.69 1.69 1.61 1.29 1.07 0.80 0.71 0.71 0.58 0.53 0.49 0.44 0.40 0.31 0.27 0.22 0.18 0.18	45.04 SAMP 2723 2722

DR. FI	RIDT	JOF NAM	NSEN		PF	ROJECT	:IG	PROJECT	STAT	ION:	580
DATE:	18/ 6	5/04		GEA	R TYPE	: BT 1	No:15	POSITION:	Lat	N	437
	\$	start	stop	durati	on				Long	E	512
TIME	:16:	:31:54	16:52:47	21	(min)	Purp	ose co	de: 3			
LOG	:885	53.33	8854.29	0.97		Area	code	: 5			
FDEPT	4:	90	89			Gear	Cond.co	ode:			
BDEPT	1:	90	89			Vali	dity co	ode:			
	Tov	wing d	ir: 340p	Wire	out: 2	285 m	Speed	: 30 kn*10			
Cor	· od ·	49 K	т то	tal ca	tch.	66	95	CATCH/HOLI	ъ.	101	20

SPECIES	CATCH	HOUR %	OF TOT. C	SAM
	weight	numbers		
Epinephelus aeneus	35.71	6	18.67	
Arionma bondi	26.57	754	13.89	272
Lepidotrigla cadmani	24.80	589	12.96	
Sepia officinalis hierredda	24.80	514	12.96	
Citharus linguatula	16.63	1240	8.69	
Dentex canariensis	8.00	200	4.18	272
Uranoscopus albesca	7.26	91	3.80	
Squatina oculata	6.71	6	3.51	
Scorpaena scrofa	5.89	11	3.08	
Bathygobius paganellus	4.74	543	2.48	
Lepidotrigla carolae	3.89	200	2.03	
Pontinus accraensis	3.43	137	1.79	
Alloteuthis africana	2.63	989	1.37	
Pentheroscion mbizi	2.57	23	1.34	
Microchirus frechkopi	2.51	86	1.31	
Priacanthus arenatus	2.29	29	1.20	
Syacium micrurum	1.66	320	0.87	
Illex coindetii	1.54	17	0.81	
Dicologoglossa cuneata	1.37	29	0.72	
Pythonichthys microphthalmus	1.31	23	0.68	
Calappa pelii	1.26	11	0.66	
Fistularia petimba	1.26	17	0.66	
Lophiodes kempi	0.91	40	0.48	
Serranus accraensis	0.69	34	0.36	
Saurida brasiliensis	0.51	103	0.27	
Grammoplites gruveli	0.46	17	0.24	
Sphoeroides marmoratus	0.40	17	0.21	
Trachinus lineolatus	0.34	11	0.18	
'Unidentfied crab'	0.29	51	0.15	
Octopus vulgaris	0.29	6	0.15	
CRABS	0.17	6	0.09	
Blennius normani	0.11	6	0.06	
Physiculus huloti	0.11	6	0.06	
Brotula barbata	0.11	6	0.06	
Gobius sp	0.06	6	0.03	
Total	191.28		100.00	

DR. FRIDTJOF NANSEN		PROJECT: IG		DJECT STAT	
DATE:19/ 6/04		PE: BT No:1	5 POSI	TION:Lat	N 425
	duration		47	Long	E 514
TIME :06:22:32 06:27:1				3	
LCG :8948.11 8948.33		Area cod		5	
FDEPTH: 142 142		GearCond			
BDEPTH: 142 142		Validity			
Towing dir: 150c	Wire out:	420 m Spe	ed: 10 .	kn*10	
Sorted: Kg T	otal catch:	24.50	CATC	H/HOUR:	294.00
SPECIES		CATCH/H	OUR	F OF TOT.	C SAMP
		weight n	umbers		
Uranoscopus albesca		50.88	636	17.31	
Lepidotrigla cadmani		41.28	672	14.04	
Sepia officinalis hierredda	10	34.68	660	11.80	
Brotula barbata		29.76	132	10.12	2729
Pontinus accraensis		23.04	408	7.84	
Grammoplites gruveli		17.04	600	5.80	
Dentex angolensis		15.36	108	5.22	
Citharus linguatula		15.12	540	5.14	2728
Priacanthus arenatus		13.08	132	4.45	
Pythonichthys microphthalmu	S	9.84	96	3.35	
Bathygobius paganellus		9.48	1440	3.22	
Pterothrissus belloci		4.92	36	1.67	
Raja miraletus		3.96	24	1.35	
Illex coindetii		3.48	84	1.18	
Saurida brasiliensis		3.12	756	1.06	
Pentheroscion mbizi		3.12	24	1.06	
Lophiodes kempi		2.76	24	0.94	
Octopus vulgaris		2.16	48	0.73	
Trichiurus lepturus		1.56	48	0.53	
Dicologoglossa cuneata		1.32	12	0.45	
Todaropsis eblanae		1.20	60	0.41	
Antigonia capros		1.20	48	0.41	
Parapenaeus longirostris		0.96	228	0.33	
Microchirus frechkopi		0.96	60	0.33	
Lepidotrigla carolae		0.96		0.33	
POLYCHAETA		0.72	12 36	0.24	
Arionma bondi		0.72	84	0.24	
HOLUTHUROIDEA		0.24	12	0.20	
Sphoeroides pachgaster Scyllarides herklotsii		0.12	12	0.08	
Cynoglossus canariensis		0.12	12	0.04	
cynogrossus canarrensis		0.12	12	0.04	
Total		293.76		99.91	

DATE: 19/ 6/04 GEAR TY	PROJECT:IG PE: BT No:15	POS.	ROJECT STATIO	428
				518
TIME :08:00:54 08:29:17 28 (min LOG :8957.42 8958.80 1.37	Area code		5	
FDEPTH: 66 65 BDEPTH: 66 65	GearCond. Validity			
Towing dir: 150¢ Wire out:	200 m Spee	d: 30	kn*10	
Sorted: Kg Total catch:	32 63	CATC	TH / HOUR :	69.92
Total caccii.	32.03	CAT	IN HOUR	09.92
SPECIES	CATCHILL	I TD	% OF TOT. C	SAMP
_ % 0	weight nu			
Brachydeuterus auritus Selene dorsalís	26.89 9.54	1954 124	38.46 13.64	2732 2731
Alloteuthis africana	8.38	6144	11.99	2/31
Sepia officinalis hierredda Mustelus mustelus	6.00 4.26	126		
Saurida brasiliensis	3.34	782	4.78	
Selar crumenophthalmus	1.11	9	1.59	
Fistularia petimba Citharus linguatula	1.05	15 133		
Illex coindetii	0.75	15	1.07	
Pagellus bellottii Raja miraletus	0.73	15 6		
Blennius normani	0.64	47 6		
Chilomycterus spinosus mauret.	0.56	6	0.80	
Sea urchins (strong spines) Priacanthus arenatus	0.47	116 41	0.70	
Syacium micrurum	0.45	41 92	0.64	
Serranus accraensis Lophiodes kempi	0.41	17	0.59 0.51	
Grammoplites gruveli	0.34	13	0.49	
Pseudupeneus prayensis Lagocephalus laevigatus	0.24	13 4	0.34	
Pythonichthys microphthalmus	0.19	2	0.27	
Parapenaeus longirostris	0.17	26	0.24	
Peristedion cataphractum Uranoscopus albesca	0.17	4 2	0.24	
Pontinus kuhlii	0.17	11	0.24	
Ariomma bondi Penaeus notialis	0.17	26	0.24	
Antennarius sp.	0.15	6 2	0.21	
Scyllarides herklotsii Antigonia capros	0.11	9	0.16	
C R A B S	0.09	2		
Bathygobius paganellus	0.04	4	0.06	
HOLUTHUROIDEA Sphoeroides marmoratus	0.02	2	0.03	
Andrew Control of the		-		
Total	69.66		99.61	
start stop duration TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77	Purpose code	ode:	Long E 3 5	520
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out:	Validity	code:	3 5	520
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49	Validity	code: code: d: 43	3 5 kn*10	1.86
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out:	GearCond. Validity 100 m Spee 0.87	code: code: d: 43 CATO	3 5 kn*10	1.86
TIME :09:07:41 09:36:03 28 (min) LOG :6960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch:	GearCond. Validity 100 m Spec 0.87 CATCH/HO Weight nu	code: code: d: 43 CATO UR mbers	3 5 kn·10 kn·10 · · · · · · · · · · · · · · · · · ·	1.86
TIME :09:07:41 09:36:03 28 (min) LOG :6960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch:	GearCond. Validity 100 m Spee 0.87	code: code: d: 43 CATO	3 5 kn·10 kn·10 · · · · · · · · · · · · · · · · · ·	1.86
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 600 Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus	Validity (100 m Speed 0.87 CATCH/HOU weight num 1.56	code: code: d: 43 CATO UR mbers	3 5 kn*10 cH/HOUR: % OF TOT. C 83.87	1.86
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN	GearCond. Validity 100 m Speer 0.87 CATCH/HOWeight num 1.56 0.30 1.86	code: code: d: 43 CATO UR mbers 2	3 5 kn*10 H/HOUR: % OF TOT. C 83.87 16.13 100.00	1.86 SAMP
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN DATE:19/ 6/04 GEAR TYE start stop duration	GearCond. Validity 100 m Spee 0.87 CATCH/HO weight nu 1.56 0.30 1.86 PROJECT:IG	code: code: d: 43 CATC UR mbers 2	3 5 5 kn*10	1.86 SAMP N: 584 431
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindeti1 Total DR. FRIDTJOF NANSEN EDATE:19/ 6/04 GEAR TYE STATE Stop duration TIME :10:51:45 11:21:28 30 (min)	GearCond. Validity 100 m Spee 0.87 CATCH/HOI weight num 1.56 0.30 1.86 PROJECT:IG PE: BT No:15	code: code: d: 43 CATC UR mbers 2	3 5 5 kn*10 CH/HOUR: % OF TOT. C 83.87 16.13 100.00 COJECT STATIOL TION:Lat N Long E 3	1.86 SAMP N: 584 431
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.14 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 600 Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN EDATE:19/6/04 GEAR TYF STATE Stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 30	GearCond Validity 100 m Spee 0.87 CATCH/HOI weight num 1.56 0.30 1.86 PROJECT:IG Purpose co Area code GearCond	code: code: d: 43 CATO UR mbers 2 PF POSI ode: :	3 5 5 kn*10 CH/HOUR: % OF TOT. C 83.87 16.13 100.00 COJECT STATIOL TION:Lat N Long E 3	1.86 SAMP N: 584 431
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEFTH: 57 49 Towing dir: 600 Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii — DR. FRIDTJOF NANSEN E TOTAL DR. FRIDTJOF NANSEN GEAR TYE Start stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEFTH: 30 30 BDEFTH: 30 30	GearCond. Validity 100 m Spee 0.87 CATCH/HO weight nu 1.56 0.30 1.86 PROJECT:IG Purpose of Area code GearCond. Validity Validity Validity	code: code: d: 43 CATO UR mbers 2 PR POSI ode: code:	3 5 kn*10 ch/HOUR: % OF TOT. C 83.87 16.13 100.00 coject STATIO: TICN:Lat N Long E 3 5	1.86 SAMP N: 584 431
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 600 Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN EART Stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEPTH: 30 30 Towing dir: 1600 Wire out:	GearCond. Validity 100 m Speed 0.87 CATCH/HOUSeight num 1.56 0.30 1.86 PROJECT:IG PE: BT No:15 Purpose Code GearCond. Validity 120 m Speed	Code: code: d: 43 CATO UR mbers 2 PR POSI ode: code: d: 3	3 5 kn*10 ch/HOUR: % OF TOT. C 83.87 16.13 100.00 coject station tionical N Long E 3 5 kn*10	1.86 SAMP N: 584 431 525
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEFTH: 57 49 Towing dir: 600 Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii — DR. FRIDTJOF NANSEN E TOTAL DR. FRIDTJOF NANSEN GEAR TYE Start stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEFTH: 30 30 BDEFTH: 30 30	GearCond. Validity 100 m Speed 0.87 CATCH/HOU weight num 1.56 0.30 1.86 PROJECT:IG Purpose c. Area code GearCond. Validity 120 m Speed 32.02	code: code: d: 43 CATC	3 5 kn*10 ch/HOUR: % OF TOT. C 83.87 16.13 100.00 coject station tionical N Long E 3 5 kn*10 ch/HOUR: 66	1.86 SAMP N: 584 431 525
THE :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii DR. FRIDTJOF NANSEN EDATE:19/6/04 GEAR TYE Start stop duration THE :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEPTH: 30 30 BDEPTH: 30 30 Towing dir: 160¢ Wire out: Sorted: 32 Kg Total catch: SPECIES	GearCond. Validity 100 m Speed 0.87 CATCH/HOU weight num 1.56 0.30 1.86 PROJECT:IG Purpose of Area code GearCond. Validity 120 m Speed 32.02 CATCH/HOU weight num weight num	code: code: CATC d: 43 CATC UR PR POSI code: code: CATC UR CATC UR DOB CATC UR CATC	3 5 kn*10 ch/HOUR: % OF TOT. C 8 3.87 16.13 100.00 coject station titoniat N Long E 3 5 kn*10 ch/HOUR: % OF TOT. C	1.86 SAMP N: 584 431 525
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.14 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDIJOF NANSEN GEAR TYF DATE:19/6/04 GEAR TYF Start Stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEFTH: 30 30 Towing dir: 160¢ Wire out: Sorted: 32 Kg Total catch: SPECIES Brachydeuterus auritus	GearCond Validity 100 m Speed 0.87 CATCH/HOU Weight num 1.86 0.30 1.86 PROJECT:IG Purpose conductor Area code GearCond Validity 120 m Speed 32.02 CATCH/HOU Weight num 13.94	code: di: 3 CATC	3 5 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 cOJECT STATIOL TICN:Lat N Long E 3 5 5 kn*10 cH/HOUR: 6 % OF TOT. C 21.77	1.86 SAMP N: 584 431 525 54.04 SAMP 2733
THE :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN GEAR TYE STATE Stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEFTH: 30 30 BDEFTH: 30 30 BDEFTH: 30 30 BDEFTH: 30 30 SORTEGE STATE STAT	GearCond Validity 100 m Spee 0.87 CATCH/HOI weight nu 1.86 0.30 1.86 PROJECT:IG Purpose cc. Area code GearCond Validity 120 m Spee 32.02 CATCH/HOI weight nu 13.94 13.06 6.42	code: d: 3 CATC	3 5 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 cOJECT STATIOL TICN:Lat N Long E 3 5 kn*10 cH/HOUR: 6 % OF TOT. C 21.77 20.39 10.02	1.86 SAMP N: 584 431 525
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDBFTH: 57 49 Towing dir: 600 Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindeti1 Total DR. FRIDTJOF NANSEN E DATE:19/ 6/04 GEAR TYS start stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEFTH: 30 30 Towing dir: 1600 Wire out: Sorted: 32 Kg Total catch: SPECIES Brachydeuterus auritus Galeoides decadactylus Scomberomorus tritor Fortunus validus	GearCond. Validity 100 m Speed 0.87 CATCH/HOU weight num 1.56 0.30 1.86 PROJECT:IG PUTPOSE CATCH/HOU Weight num 120 m Speed 32.02 CATCH/HOU weight num 13.94 13.94 13.96 6.42 5.02	code:	3 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 cOJECT STATION Lat N Long E 3 5 kn*10 cH/HOUR: 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1.86 SAMP 1.86 SAMP 2733 2734 2738
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 27 49 Towing dir: 600 Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN GAR TYE start stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEPTH: 30 30 Towing dir: 1600 Wire out: Sorted: 32 Kg Total catch: SPECIES Brachydeuterus auritus Galeoides decadactylus Scomberomorus tritor Fortunus validus Drepane africana Trichiurus lepturus	GearCond. Validity 100 m Speed 0.87 CATCH/HOM Weight num 1.56 0.30 1.86 PROJECT:IG PROJECT:IG PROJECT:IG PROJECT:IG 2E: BT No:15 Purpose of Area code GearCond. Validity 120 m Speed 32.02 CATCH/HOM Weight num 13.94 13.96 6.42 5.02 4.20 3.44	code: d: 3 CATC	3 5 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 cOJECT STATIOL TICN:Lat N Long E 3 5 kn*10 cH/HOUR: 6 % OF TOT. C 21.77 20.39 10.02	1.86 SAMP N: 584 431 525 54.04 SAMP 2733 2734
THE :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii DR. FRIDTJOF NANSEN EUTHYNNUS SEAT Stop duration Total DR. FRIDTJOF NANSEN GEAR TYE start stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEPTH: 30 30 BDEPTH: 30 30 BDEPTH: 30 30 STOWING dir: 160¢ Wire out: Sorted: 32 Kg Total catch: SPECIES Brachydeuterus auritus Galeoides decadactylus Scomberomorus tritor Fortunus validus Drepane africana Trichiurus lepturus Sphyraena guachancho	GearCond. Validity 100 m Speed 0.87 CATCH/HOUSeld mu 1.56 0.30 1.86 PROJECT:IG PUTPOSE CAPEA CODE GEARCOND. Validity 120 m Speed 32.02 CATCH/HOUSeld mu 13.94 13.94 13.96 6.42 5.02 4.20 3.44 3.10	code:	3 5 kn*10 ch/Hour: % of Tot. C 83.87 16.13 100.00 coject station titon; Long E 3 5 kn*10 ch/Hour: % of Tot. C 21.77 20.39 10.02 7.84 6.56 5.37 4.84	1.86 SAMP N: 584 431 525 SAMP 2733 2734 2735 2736 2740
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 27 49 Towing dir: 600 Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN GAR TYE start stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEPTH: 30 30 Towing dir: 1600 Wire out: Sorted: 32 Kg Total catch: SPECIES Brachydeuterus auritus Galeoides decadactylus Scomberomorus tritor Fortunus validus Drepane africana Trichiurus lepturus	GearCond. Validity 100 m Speed 0.87 CATCH/HOM Weight num 1.56 0.30 1.86 PROJECT:IG PROJECT:IG PROJECT:IG PROJECT:IG 2E: BT No:15 Purpose of Area code GearCond. Validity 120 m Speed 32.02 CATCH/HOM Weight num 13.94 13.96 6.42 5.02 4.20 3.44	code: code: CATC CATC CATC UR PFR POSI code: : code: : code: : 242 230 242 242 242 247 247 247 247	3 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 cOJECT STATIOL TION:Lat N Long E 3 5 kn*10 cH/HOUR: 6 6 5 6 5 3 7 8 6 5 6 5 3 7 8 6 6 5 6 5 3 7 8 6 6 6 6 6 5 5 3 7	1.86 SAMP N: 584 431 525 SAMP 2733 2734 2738 2735
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TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.14 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii ——————————————————————————————————	GearCond. Validity 100 m Speed 0.87 CATCH/HOUSeight num 1.56 0.30 1.86 PROJECT:IG Purpose of Area code GearCond. Validity 120 m Speed 32.02 CATCH/HOUSeight num 13.94 13.94 13.96 6.42 5.02 4.20 3.44 3.10 2.22 2.06 1.58 1.52 1.52 1.32	code: did 3 CATC UR PPR POSI Dde: code: did 3 CATC 242 243 240 288 488 488 888 888 888	3 5 kn*10 ch/HOUR: % OF TOT. C 83.87 16.13 100.00 coject STATION TIONLAT N Long E 3 5 kn*10 ch/HOUR: 6 6 6 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 5.37 4.84 6.56 6.53 6.50 6.50 6.50 6.50 6.50 6.50 6.50 6.50	1.86 SAMP N: 584 431 525 54.04 SAMP 2733 2734 2738 2735 2740 2736
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TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii DR. FRIDTJOF NANSEN EUTHYNNUS STATE Stop duration Total DR. FRIDTJOF NANSEN GEAR TYE STATE STOP duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEPTH: 30 30 BDEPTH: 30 30 Towing dir: 160¢ Wire out: Sorted: 32 Kg Total catch: SPECIES Brachydeuterus auritus Galeoides decadactylus Scomberomorus tritor Portunus validus Drepane africana Trichiurus lepturus Sphyraena guachancho Alectis alexandrimus Pseudotolithus senegalensis Selene dorsalis Pseudotolithus senegalensis Selene dorsalis Pseudotolithus typus Raja miraletus Chloroscombrus chrysurus Penaeus notialis Caranx senegallus Citharus linguatula	GearCond. Validity 100 m Speed 0.87 CATCH/HO Weight num 1.56 0.30 1.86 PROJECT:IG Purpose co. Area code GearCond. Validity 120 m Speed 32.02 CATCH/HO Weight num 13.94 13.06 6.42 5.02 4.20 3.44 3.10 2.22 2.06 1.58 1.52 1.52 1.32 0.94 0.62 0.46	code: di 3 CATC CATC CATC CATC 242 230 288 488 888 888 888 888 888 88	3 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 cOJECT STATIOL TICN:Lat N Long E 3 5 kn*10 cH/HOUR: % % OF TOT. C 21.77 20.39 10.02 7.84 6.56 5.37 4.84 3.47 3.22 2.47 4.84 3.47 3.22 2.47 2.37 2.06 1.47 0.97 0.72	1.86 SAMP N: 584 431 525 54.04 SAMP 2733 2734 2738 2735 2740 2736
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.14 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN GEAR TYF DATE:19/6/04 GEAR TYF Start Stop duraction TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEFTH: 30 30 Towing dir: 160¢ Wire out: Sorted: 32 Kg Total catch: SPECIES Brachydeuterus auritus Galeoides decadactylus Scomberomorus tritor Fortunus validus Drepane africana Trichiurus lepturus Sphyraena guachancho Alectis alexandrinus Pseudotolithus senegalensis Selene dorsalis Pseudotolithus typus Raja miraletus Chloroscombrus chrysurus Penaeus notialis Caranx senegallus Citharus linguatula C R A B S	GearCond. Validity 100 m Speed 0.87 CATCH/HOM Weight num 1.56 0.30 1.86 PROJECT:IG PUTPOSE CATCA CODE Area code GearCond. Validity 120 m Speed 120 m Speed 120 m Speed 13.96 6.42 5.02 4.20 4.20 4.20 3.44 3.10 2.22 2.06 1.58 1.52 1.32 0.94 0.62 0.42 0.42	code:	3 5 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 cOJECT STATIOL TICN:Lat N Long E 3 5 5 kn*10 cH/HOUR: % OF TOT. C 21.77 20.39 10.02 7.84 6.56 5.37 4.84 3.47 3.22 2.47 2.37 2.37 2.37 2.36 1.47 0.97 0.72 0.66	1.86 SAMP N: 584 431 525 54.04 SAMP 2733 2734 2738 2735 2740 27739
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii Total DR. FRIDTJOF NANSEN GEAR TYE STATE Stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEFTH: 30 30 BDEFTH: 30 30 BDEFTH: 30 30 Sorted: 32 Kg Total catch: SPECIES Brachydeuterus auritus Galeoides decadactylus Scomberomorus tritor Fortunus validus Drepane africana Trichiurus lepturus Sphyraena guachancho Alectis alexandrinus Pseudotolithus senegalensis Selene dorsalis Pseudotolithus typus Raja miraletus Chloroscombrus chrysurus Penaeus notialis Caranx senegallus Citharus linguatula C R A B S Ilisha africana Sardinella maderensis	GearCond. Validity 100 m Speed 0.87 CATCH/HOM Weight num 1.56 0.30 1.86 PROJECT:IG PE: BT No:15 Purpose condended to the c	code:	3 5 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 COJECT STATIOL TICN:Lat N Long E 3 5 kn*10 cH/HOUR: % OF TOT. C 21.77 20.39 10.02 7.84 6.56 5.37 4.84 43.47 3.22 2.47 2.37 2.36 6.46 6.66 6.56 6.56 6.56 6.56 6.56 6.5	1.86 SAMP N: 584 431 525 54.04 SAMP 2733 2734 2738 2735 2740 2736
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60e Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii DR. FRIDTJOF NANSEN E A CEAR TYE STATE S	GearCond Validity 100 m Speed	code:	3 5 kn*10 cH/HOUR: % OF TOT. C 83.87 16.13 100.00 cOJECT STATION TION.LAT N Long E 3 5 kn*10 cH/HOUR: 6 5.37 10.02 7.84 6.56 5.37 4.84 3.47 2.37 2.37 2.37 2.37 2.37 2.37 2.37 2.3	1.86 SAMP N: 584 431 525 54.04 SAMP 2733 2734 2738 2736 2739
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii DR. FRIDTJOF NANSEN E GEAR TYS Start stop duration TIME :10:51:45 11:21:28 30 (min) LOG :8972.01 8973.42 1.39 FDEPTH: 30 30 BDEPTH: 30 30 BDEPTH: 30 40 40 Towing dir: 160¢ Wire out: Sorted: 32 Kg Total catch: SPECIES Erachydeuterus auritus Galeoides decadactylus Scomberomorus tritor Portunus validus Drepane africana Trichiurus lepturus Sphyraena guachancho Alectis alexandrinus Pseudotolithus senegalensis Selene dorsalis Pseudotolithus typus Raja miraletus Colhoroscombrus chrysurus Penaeus notialis Caranx senegallus Citharus linguatula C R A B S Ilisha africana Sardinella maderensis Epinephelus aeneus Squilla cadenati Lepidotrigla carolae	GearCond Validity Validity 100 m Speed 0.87 CATCH/HOU weight num 1.56 0.30 1.86 PROJECT:IG Purpose cc. Area code GearCond Validity 120 m Speed 22.02 CATCH/HOU weight num 13.94 13.94 13.94 13.06 6.42 5.02 4.20 3.44 3.10 2.22 2.06 1.58 1.52 1.32 0.94 0.62 0.42 0.34 0.16 0.14	code:	3 5 kn*10 ch/HOUR: % OF TOT. C 8 3.87 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF TOT. C 100.00 column % OF	1.86 SAMP N: 584 431 525 54.04 SAMP 2733 2734 2738 2736 2739
TIME :09:07:41 09:36:03 28 (min) LOG :8960.57 8963.34 2.77 FDEPTH: 20 20 BDEPTH: 57 49 Towing dir: 60¢ Wire out: Sorted: 1 Kg Total catch: SPECIES Euthynnus alletteratus Illex coindetii DR. FRIDTJOF NANSEN ENTER THE STATE STAT	GearCond. Validity 100 m Speed 0.87 CATCH/HOUSelf num 1.56 0.30 1.86 PROJECT:IG PROJE	code:	3 5 kn*10	1.86 SAMP N: 584 431 525 54.04 SAMP 2733 2734 2738 2736 2739
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99.17

63.50

DR. FRIDTJOF NANSEN	PROJECT: IG	PROJECT S	TATION: 585
DATE: 19/ 6/04 GEAR T	YPE: BT No:15	POSITION: La	t N 414
start stop duration		Lo	ng E 531
	n) Purpose co		
LOG :8991.48 8992.98 1.48	Area code	: 5	
FDEPTH: 33 33	GearCond.c		
BDEPTH: 33 33	Validity c		
Towing dir: 335ø Wire out	: 145 m Speed	: 30 kn*10	
Sorted: 28 Kg Total catch	1: 28.30	CATCH/HOUR:	56.60
	CATCH/HOU	9 077 000	T. C. SAMP
SPECIES		R % OF TO	I. C SAMP
Portunus validus	10.40 num		. 37
	10.30		.20 2742
Sphyraena guachancho Caranx crysos	7.62		.46
Scomberomorus tritor	4.74		.37 2743
Selene dorsalis	4.28		.56 2745
Chloroscombrus chrysurus	3.88		.86 2744
Balistes capriscus	3.62		.40
Pseudupeneus prayensis	3.00		.30
Pagrus caeruleostictus	2.54		.49 2746
Sea cucumbers	1.84		.25
Sepia officinalis hierredda	1.52		.69
Lagocephalus laevigatus	1.46		.58
Chilomycterus spinosus mauret.	0.60		.06
Pistularia tabacaria	0.34		.60
Selar crumenophthalmus	0.32		. 57
Brachydeuterus auritus	0.10	26 0	.18
Scyllarides sp.	0.02		. D4
Total	56.58	99	.98

DR. F	RIDTJOF	NANSEN		PROJ	ECT: IG	P	ROJECT	STAT	ION:	586
DATE:	19/ 6/04		GEAR	R TYPE:	BT No:1	5 POS	ITION:	Lat	N	414
	star	t stop	duration	on				Long	E	526
TIME	:15:01:	17 15:31	32 30	(min) P	urpose (code:	3			
LOG	:9000.7	0 9002.2	28 1.58	A	rea cod	e :	5			
FDEPT	H: 5	9 5	57	G	earCond	.code:				
BDEPT	H: 5	9 5	7	V	alidity	code:				
	Towing	dir: 150	d Wire	out: 195	m Spe	ed: 30	kn*10			

32.08 CATCH/HOUR:

64.16

Total catch:

Sorted: Kg

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMI
	weight	numbers		
Selene dorsalis	20.12	194	31.36	2747
Paragaleus pectoralis	9.10	4	14.18	
Priacanthus arenatus	8.48	120	13.22	
Brachydeuterus auritus	4.20	368	6.55	2748
Alloteuthis africana	3.56	828	5.55	
Sphyraena guachancho	2.38	8	3.71	
Pseudupeneus prayensis	2.16	28	3.37	
Saurida brasiliensis	1.86	496	2.90	
Selar crumenophthalmus	1.82	16	2.84	
Portunus validus	1.52	4	2.37	
Balistes capriscus	1.04	4	1.62	
Caranx crysos	0.82	4	1.28	
Svacium micrurum	0.76	162	1.18	
Raja miraletus	0.76	4	1.18	
Sepia officinalis hierredda	0.74	26	1.15	
Epinephelus aeneus	0.70	4	1.09	
Citharus linguatula	0.70	30	1.09	
Chloroscombrus chrysurus	0.64	8	1.00	
Pagellus bellottii	0.52	4	0.81	
Lagocephalus laevigatus	0.50	8	0.78	
Pagrus caeruleostictus	0.24	2	0.37	
Calappa sp.	0.16	8 2 2 2	0.25	
Chilomycterus spinosus mauret.	0.16	2	0.25	
Grammoplites gruveli	0.16	12	0.25	
Brotula barbata	0.14	2	0.22	
Lepidotrigla cadmani	0.14	4	0.22	
Lophiodes kempi	0.10	4	0.16	
Galeoides decadactylus	0.10	2	0.16	
Bathygobius paganellus	0.08	34	0.12	
Sepiella ornata	0.06	6	0.09	
Scyllarides herklotsii	0.06	8	0.09	
Microchirus frechkopi	0.04	2	0.06	
Antennarius sp.	0.04	2	0.06	
Monochirus hispidus	0.02	2	0.03	
Total	63.88		99.56	

DR. F			NSE	N		1	PROJEC	T:IG	P	ROJECT :	STAT.	ION:	587
DATE:	19/ 6	5/04			GE	AR TY	PE: BT	No:15	POS	ITION: L	at	N	412
		start			durat					L	ong	E	524
TIME	:16:	:41:54	17	:11:37	7 30	(min	Pur	pose co	le:	3			
LOG	:900	9.87	90	11.38	1.53		Are	a code		5			
FDEPT	H:	96		88			Gea	rCond.co	ode:				
BDEPT	H:	96		88			Val	idity co	de:				
	Tov	ving d	irı	150ø	Wire	out:		Speed		kn-10			
Sor	ted:	54 K	g	To	tal c	atch:	8	3.67	CAT	CH/HOUR		167	. 34

SPECIES	CATCH	/HOUR	% OF TOT. C	SAME
	weight	numbers		
Ariomma bondi	40.84	836	24.41	2751
Epinephelus aeneus	28.80	4	17.21	
Sepia officinalis hierredda	28.36	128	16.95	
Alloteuthis africana	14.68	5784	8.77	
Dentex angolensis	13.10	168	7.83	2749
Lepidotrigla cadmani	7.64	152	4.57	
Brotula barbata	5.48	40	3,27	
Squatina oculata	4.60	232	2.75	
Uranoscopus albesca	4.12	52	2,46	
Trichiurus lepturus	3.32	68		
Dentex congoensis	3.16	44	1.89	2750
Illex coindetii	1.80	20	1.08	
Chilomycterus spinosus mauret.	1.48	12	0.88	
Pontinus accraensis	1.36	4	0.81	
Saurida brasiliensis	1.32	320	0.79	
Selene dorsalis	1.28	12	0.76	
Parapenaeus longirostris	0.96	136	0.57	
Todarodes sagittatus	0.84	52	0.50	
Microchirus frechkopi	0,56	192	0.33	
Priacanthus arenatus	0.56	16	0.33	
Dactylopterus volitans	0.52	4	0.31	
Pentheroscion mbizi	0.52	4	0.31	
Raja miraletus	0.44	4	0.26	
Calappa pelii	0.44	4	0.26	
Grammoplites gruveli	0.28	4	0.17	
Citharus linguatula	0.24	8	0.14	
Fistularia petimba	0.24	4	0.14	
Lepidotrigla carolae	0.20	8	0.12	
Physiculus huloti	0.12	8	0.07	
Serranus accraensis	0.08	4	0.05	
Total	167.34		99.97	

DR. F			NAN!	EN				ROJEC:			ROJECT			588
DATE:						GEAR	TYPE	E: BT	No:15	POS	ITION:	Lat	N	357
		start		stop	o dur	atic	n					Long	E	530
TIME	:06	:32:0	06 (06:39	9:21	7 (min)	Purp	ose co	de:	3			
LOG	:91	11.9		112	23 0.	31		Area	code	٠	5			
FDEPT	H:	126	5	1	111			Gear	Cond.c	ode:				
BDEPT	H:	126	5	- 1	111			Val	dity c	ode:				
	To	wing	din	r: 15	iOø Wi	re c	ut: 3	350 m	Speed	1: 30	kn*10			
Sor	ted:	23	Ка		Total	cat	ch:	56	5.60	CAT	CH/HOU	m.	485	14

SPECIES	CATCH	I/HOUR	% OF	TOT. C	SAMP
	weight	numbers			
Lepidotrigla cadmani	115.71	2417		23.85	
Sepia officinalis hierredda	66.00	1354		13.60	
Pontinus accraensis	62.91	1286		12.97	
Mustelus mustelus	43.71	17		9.01	
Dentex angolensis	35.31	317		7.28	2752
Uranoscopus albesca	33.94	34		7.00	
Brotula barbata	30.09	94		6.20	2754
Dentex congoensis	22.37	274		4.61	2753
Citharus linguatula	17.31	891		3.57	
Pterothrissus belloci	12.00	86		2.47	
Bathygobius paganellus	9.77	1457		2,01	
Priacanthus arenatus	8.74	103		1.80	
Pentheroscion mbizi	7.03	51		1.45	
Todaropsis eblanae	4.63	257		0.95	
Lepidotrigla carolae	3.43	154		0.71	
Trichiurus lepturus	2.06	34		0.42	
Grammoplites gruveli	1.89	69		0.39	
Lophiodes kempi	1.89	34		0.39	
Dicologoglossa cuneata	1.71	34		0.35	
Raja miraletus	1.54	34		0.32	
Maja goltziana	1.03	17		0.21	
POLYCHAETA	0.69	17		0.14	
Physiculus huloti	0.69	17		0.14	
Microchirus frechkopi	0.51	17		0.11	
Syacium micrurum	0.17	17		0.04	
Total	485.13			99,99	

DR. F	RIDT	JOF NAI	NSEN		P	ROJECT	: IG	P	ROJECT STAT	CION:	589
DATE:	20/	6/04		GEA	AR TYP	E: BT	No:15	POS	ITION:Lat	N	359
		start	stop	durat:	ion				Long	E	532
TIME	:08	:01:41	08:31:33	30	(min)	Purp	ose cod	de:	3		
LOG	:91	19.43	9120.99	1.55		Area	code	;	5		
FDEPT	H:	68	64			Gear	Cond.co	ode:			
BDEPT	H:	68	64			Vali	dity co	ode:			
	To	wing d	ir: 150ø	Wire	out:	210 m	Speed	: 30	kn*10		
	rod.	v.		tal c	. t - h	20	72	C & M	CU / HOTER .	70	4.4

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Alloteuthis africana	18,90	14440	23.79	
Sepia officinalis hierredda	17.86	50	22.48	
Mustelus mustelus	11.36	14	14.30	
Dentex angolensis	4.56	28	5.74	2756
Priacanthus arenatus	4.52	72	5.69	
Lepidotrigla cadmani	4.28	124	5.39	
Decapterus punctatus	3.84	86	4.83	2757
Epinephelus aeneus	2.30	6	2.90	
Todaropsis eblanae	1.72	116	2.17	
Raja miraletus	1.60	6	2.01	
Fistularia petimba	1.58	26	1.99	
Dentex congcensis	1.26	20	1.59	2755
Chilomycterus spinosus mauret.	1.24	10	1.56	
Zeus faber	0.74	4	0.93	
Citharus linguatula	0.60	50	0.76	
Illex coindetii	0.52	4	0.65	
Pontinus kuhlii	0.48	6	0.60	
Grammoplites gruveli	0.32	14	0.40	
Brotula barbata	0.32	2	0.40	
Pseudupeneus prayensis	0.30	2	0.38	
Sardinella aurita	0.22	2	0.28	
Selar crumenophthalmus	0.20	2	0.25	
Syacium micrurum	0.18	38	0.23	
Trichiurus lepturus	0.14	2	0.18	
Sphoeroides marmoratus	0.12	10	0.15	
Brachydeuterus auritus	0.08	2	0.10	
Ariomma bondi	0.06	6	0.08	
Pecten jacobus	0.04	2	0.05	
Total	79.34		99.88	

DATE: 2		IJOF NA	1401.14	GEA		DJECT:IG : BT No:1		PROJEC'		N	405
D			stop			11 700 11200	1505		Long	E	537
TIME	:1	0:12:02	10:41:33	2 30	(min)	Purpose	code:	3			
LOG	:9	133.57	9135.00	1.44		Area coo	le	: 5			
FDEPTH		36	36			GearCond	i.code	:			
BDEPTH	:	36	36			Validity	code	:			
	T	owing d	ir: 140ø	Wire	out: 1	20 m Spe	eed: 3	kn*1	0		

Sorted: 28 Kg Total catch:	27.6	9 CATO	H/HOUR:	55.38
SPECIES	CATCH	I/HOUR	% OF TOT. C	SAME
	weight	numbers		
Sepia officinalis hierredda	7.76	20	14.01	
Caranx cryses	7.22	44	13.04	2760
Selene dorsalis	6.12	66	11.05	
Sphyraena guachancho	5.52	18	9.97	2761
Pseudupeneus prayensis	5.08	50	9.17	2762
Balistes capriscus	4.48	34	8.09	2759
Brachydeuterus auritus	3.44	54	6.21	2758
HOLUTHUROIDEA	3.20	10	5.78	
Scomberomorus tritor	3.06	12	5,53	2763
Chloroscombrus chrysurus	1.66	24	3.00	
Lagocephalus laevigatus	1.48	16	2.67	
JELLYFISH	1.46	82	2.64	
Portunus validus	1.08	4	1.95	
Pagrus caeruleostictus	0.92	16	1.66	
Decapterus punctatus	0.72	14	1.30	
Dentex canariensis	0.50	2	0.90	
Lolligoncula mercatoris	0.48	352	0.87	
Selar crumenophthalmus	0.44	4	0.79	
Chilomycterus spinosus mauret.	0.32	2	0.58	
Priacanthus arenatus	0.20	4	0.36	
Lepidotrigla cadmani	0.08	2 2 2	0.14	
Syacium micrurum	0.08	2	0.14	
Pontinus accraensis	0.06	2	0.11	
Scyllarides herklotsii	0.02	2	0.04	
Total	55.38		100.00	

DR. FRIDTJOF NAM	ISEN	PROJECT	:IG P	ROJECT STAT	'ION: 5	591
DATE:20/ 6/04	GE	AR TYPE: BT 1	No:15 POS	ITION:Lat	N 4	411
start	stop durat	ion		Long	E 5	542
TIME :12:14:58			ose code:	3		
LOG :9146.19	9147.76 1.56	Area	code :	5		
FDEPTH: 25	25	Gear	Cond.code:			
BDEPTH: 25	25	Valid	dity code:			
Towing di	r: 136¢ Wire	out: 105 m	Speed: 3	kn*10		

SPECIES	CATCH	/HOUR	8 O.	F TOT. C	SAMP
	weight	numbers			
Trichiurus lepturus	55.00	596		41.04	2770
Chloroscombrus chrysurus	35.00	1120		26.12	
Pseudotolithus typus	7.60	86		5.67	2769
Scomberomorus tritor	6.14	46		4.58	2766
Rhizoprionodon acutus	4.30	16		3.21	
Pomadasys jubelini	3.88	10		2.90	2764
Galeoides decadactylus	3.80	50		2.84	
Pseudotolithus senegalensis	2.66	14		1.98	2767
Ilisha africana	2.60	186		1.94	0.700.0000
Sphyraena guachancho	1.68	10		1.25	
Lagocephalus laevigatus	1.48	2		1.10	
Sepiellea ornata juv.	1.40	244		1.04	
Selene dorsalis	1.26	116		0.94	
Pseudotolithus elongatus	1.00	20		0.75	2768
Pteroscion peli	0.96	16		0.72	
Portunus validus	0.86	20		0.64	
Sardinella maderensis	0.82	16		0.61	2765
ANTENNARIIDAE	0.66	4		0.49	
Caranx hippos	0.66	4		0.49	
Caranx crysos	0.66	4		0.49	
Brachydeuterus auritus	0.60	10		0.45	
Pseudupeneus prayensis	0.48	4		0.36	
Squilla acuelata calmani	0.36	26		0.27	
Penaeus notialis	0.26	10		0.19	
Penaeus monodon	0.26	2		0.19	
Balistes capriscus	0.22	2		0.16	
Pentanemus quinquarius	0.22	4		0.16	
Pseudotolithus brachygnathus	0.20	2		0.15	
Pseudotolithus epipercus	0.16	2		0.12	
Hemicaranx bicolor juv.	0.04	4		0.03	
Drepane africana	0.02	2		0.01	
Total	135.24			100.89	

DATE:		JOF NA		CEN	R TYP	ROJEC'				ECT S		N	408
Detta.						. DI	140.1		STIT			7.00	
		start	stop	durati	on					Lo	ng	E	556
TIME	:15	:17:13	15:37:34	20	(min)	Pur	pose	code:	3				
LOG	:91	62.79	9163.80	0.99		Area	a cod	le	: 5				
FDEPT:	H:	22	22			Gear	rCond	.code	:				
BDEPT:	H:	22	22			Val:	idity	code					
	To	wing d	ir: 2800	Wire	out:	105 m	Spe	ed: 3	0 km	*10			

Towin	g air:	2800 Wire out:	105 m Speed: 3	0 Kn*10	
Sorted: 1	5 Kg	Total catch:	77.54 CA	TCH/HOUR:	232.62
SPECIES			CATCH/HOUR	% OF TOT.	C SAMP
			weight number	s	

	weight	numbers		
Ilisha africana	67.80	2982	29.15	
Pseudotolithus typus	56.25	123	24.18	2771
Pseudotolithus senegalensis	49.20	135	21.15	2772
Galeoides decadactylus	14.22	138	6.11	
Scomberomorus tritor	7.20	30	3.10	
Portunus validus	5.16	87	2,22	
Chloroscombrus chrysurus	4.86	300	2,09	
Elops lacerta	4.26	18	1.83	
Trichiurus lepturus	3.84	306	1.65	
Epinephelus aeneus	3.30	3	1.42	
Rhizoprionodon acutus	3.18	9	1.37	
Sphyraena guachancho	1.98	9	0.85	
Sardinella maderensis	1.53	30	0.66	
Pteroscion peli	1.44	42	0.62	
Selene dorsalis	1.08	24	0.46	
Sepiella ormata	0.96	102	0.41	
Pseudotolithus epipercus	0.93	12	0.40	
Caranx hippos	0.66	6	0.28	
Pentanemus quinquarius	0.63	12	0.27	
Pomadasys jubelini	0.60	3	0.26	
Halobatrachus didactylus	0.60	6	0.26	
Drepane africana	0.54	18	0.23	
Cynoglossus browni	0.54	6	0.23	
Trachinotus ovatus	0.48	3	0,21	
Cymbium cymbium	0.27	6	0.12	
Panulirus regius	0.27	3	0.12	
Brachydeuterus auritus	0.24	3	0.10	
Parapenaeopsis atlantica	0.24	57	0.10	
Lagocephalus laevigatus	0.12	6	0.05	
Citharichthys stampflii	0.12	6	0.05	
Penaeus monodon	0.09	9	0.04	
Scyllarides herklotsii	0.03	6	0.01	
Total	232.62		100,00	

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Sorted: 33 Kg Total catch: 32.80 CATCH/HOUR: 63.48
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SPECIES	CATCE	I/HOUR	% OF TOT. C	SAME
	weight	numbers		
Brachydeuterus auritus	33.45	749	52.69	
Sphyraena guachancho	11.75	81	18.51	
Portunus validus	9.89	52	15.58	
DIOGENIDAE	1.37	2	2.16	
Scomberomorus tritor	1.16	8	1.83	
Selene dorsalis	1.10	17	1.73	
Sepia officinalis hierredda	1.08	8	1.70	
Sea cucumbers	0.62	2	0.98	
Ilisha africana	0.60	19	0.95	
Chloroscombrus chrysurus	0.58	10	0.91	
Caranx crysos	0.45	2	0.71	
Sardinella maderensis	0.41	8	0.65	
Chilomycterus spinosus mauret.	0.23	2	0.36	
Trichiurus lepturus	0.21	10	0.33	
Pseudotolithus senegalensis	0.19	2	0.30	
Balistes capriscus	0.19	2	0.30	
Pentanemus quinquarius	0.08	2	0.13	
Grammoplites gruveli	0.06	2	0.09	
Pontocaris lacazei	0.02	2	0.03	
Alloteuthis africana	0.02	2	0.03	
Penaeus notialis	0.02	2	0.03	
Brotula barbata	0.02	2	0.03	
Total	63.50		100.03	

DR. FI				. 42 12				CEAR		ROJEC	No:15			CT STAT	N	348
DATE:	611	ь	7114							E: B1	MO:TO	PUS	1110	N: Lat	0.0	
		S	tar	t	st	op	dur	atic	n					Long	E	608
TIME	: 0	6:	27:4	25	07:	00:0	7 3	3 (minl	Pur	pose c	ode:	3			
LOG	: 9	26	9.3	5	927	0.94	1.	60		Are	a code		5			
FDEPT	f:		14	4		153				Gea	rCond.	code:				
BDEPTI	1:		14	4		153				Val	idity	code:				
	1	ow.	ing	di	r:	110¢	Wi	re c	ut:	360 m	Spee	d: 30	kn*	10		
Sor		1970		Ko		π	otal	cat	ch.	12	0.26	CAT	CH / H	OT TO .	218	66

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Ariomma bondi	179.27	4233	81.99	
Uranoscopus albesca	9.09	95	4.16	
SQUATINIDAE	6.00	2	2.74	
Priacanthus arenatus	3.56	58	1.63	
Trichiurus lepturus	3.42	65	1.56	
Dentex angolensis	3.35	29	1.53	
Illex coindetii	2.47	65	1.13	
Portunus validus	2.04	9	0.93	
Sepia officinalis hierredda	1.96	36	0.90	
Pentheroscion mbizi	1.82	22	0.83	
Brachydeuterus auritus	1.02	36	0.47	
Lophiodes kempi	1.02	7	0.47	
Pterothrissus belloci	0.80	7	0.37	
Saurida brasiliensis	0.80	196	0.37	
Lepidotrigla cadmani	0.51	7	0.23	
Grammoplites gruveli	0.44	15	0.20	
Pontinus accraensis	0.36	7	0.16	
Peristedion cataphractum	0.22	7	0.10	
Physiculus huloti	0.22	7	0.10	
Parapenaeus longirostris	0.15	36	0.07	
Lagocephalus laevigatus	0.15	15	0.07	
Total	218.67		100.01	

DR. FI			NSEN		PROJECT: IG			PROJECT STATION:			595
DATE:	21/ 6	/04		GE	AR TYPI	E: BT	No:15	POSIT	'ION: Lat	N	354
		tart	stop	durat	ion				Long	E	609
TIME	:08:	39:24	09:09:0	2 30	(min)	Purp	ose co	de: 3			
LCG	:928	2.41	9283.85	1.42		Area	code	: 5	0		
FDEPTH	4:	64	64			Gear	Cond.c	ode:			
BDEPTH	1:	64	64			Vali	dity c	ode:			
	Tow	ing d	ir: 97¢	Wire	out:				n*10		
Sort	ed:	1 K	а т.	otal c	atch:	43	. 67	CATCH	/HOUR:	87	. 34

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	19.02	50	21.78	
Alloteuthis africana	18.00	8466	20.61	
Saurida brasiliensis	16.24	4458	18.59	
Priacanthus arenatus	6.40	78	7.33	
Dentex angolensis	6.16	54	7.05	2774
Epinephelus aeneus	3.30	10	3.78	
Citharus linguatula	3.04	162	3.48	
Lepidotrigla cadmani	1.80	38	2.06	
Raja miraletus	1.64	8	1.88	
Syacium micrurum	1.36	224	1.56	
Fistularia petimba	1.34	20	1.53	
Ariomma bondi	1.04	22	1.19	
Grammoplites gruveli	1.00	40	1.14	
Scorpaena scrofa	0.96	4	1.10	
Sepia juveniles	0.92	36	1.05	
Octopus vulgaris	0.90	2	1.03	
Pseudupeneus prayensis	0.82	8	0.94	
Chilomycterus spinosus mauret.	0.82	6	0.94	
Sea urchins (waek spines)	0.62	300	0.71	
Seriola carpenteri	0.50	2	0.57	
Ariomma bondi juv.	0.20	56	0.23	
Uranoscopus albesca	0.16	2	0.18	
Sphoeroides marmoratus	0.16	8	0.18	
Pagellus bellottii	0.16	2	0.18	
Portunus validus	0.12	2	0.14	
Dentex congoensis	0.12	2	0.14	
Sicyonia galeata	0.06	10	0.07	
Decapterus punctatus	0.06	4	0.07	
Octopus defilippi	0.06	2	0.07	
Cardita ajar	0.04	4	0.05	
Bathygobius paganellus	0.04	6	0.05	
Physiculus huloti	0.04	2	0.05	
Squilla mantis	0.02	2	0.02	
Lepidotrigla carolae	0.02	6 2 2 2 2	0.02	
Zeus faber	0.02	2	0.02	
Total	87.16		99.79	

		OF NAI	NSEN	PROJECT: IG			PROJECT STAT	CICN:	596
DATE:	21/ 6	/04		GE	AR TYP	E: BT No:15	POSITION:Lat	N	401
		tart		durat:	ion		Long	E	610
TIME	:11:	08:16	11:38:54	31	(min)	Purpose co	de: 3		
LOG	:929	5.96	9297.58	1.61		Area code	: 5		
FDEPT	H:	35	35			GearCond.c	ode:		
BDEPT.	H:	35	35			Validity o	ode:		
	Tow	ing d	ir: 95ø	Wire	out:	120 m Speed	: 30 kn*10		
Sor	ted:	28 K	To To	tal ca	atch:	27.61	CATCH/HOUR:	5.3	.44

SPECIES	CATCH	1/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	22.22	286	41.58	2775
Selene dorsalis	6.75	79	12.63	2776
Selar crumenophthalmus	4.39	39	8.21	2780
Caranx crysos	3.06	15	5.73	
Pagrus caeruleostictus	2.46	21	4,60	
Pseudupeneus prayensis	2.36	29	4.42	
Portunus validus	2.03	6	3.80	
Sepia officinalis hierredda	1.92	6	3.59	
Sardinella maderensis	1.66	15	3.11	
Priacanthus arenatus	1.51	23	2.83	
Epinephelus aeneus	1.28	6	2.40	
Alloteuthis africana	1.01	604	1.89	
Raja miraletus	0.83	6	1.55	
Balistes capriscus	0.68	4	1.27	
Lagocephalus laevigatus	0.60	6	1.12	
Citharus linguatula	0.15	8	0.28	
Saurida brasiliensis	0.15	37	0.28	
Grammoplites gruveli	0.10	4	0.19	
Syacium micrurum	0.10	8	0.19	
Starfish	0.08	4	0.15	
Scyllarides herklotsii	0.06	12	0.11	
Todaropsis eblanae	0.04	2	0.07	
Total	53.44		100.00	

Sorted: 2 Kg

RANSEN PROJECT:IG PROJECT STATION: 597

Dis:21/6/04 GEAR TYPE: BT No:15 POSITION:Lat N 405

start stop duration Long E 526

TIME :13:43:20 14:13:36 30 (min) Purpose code: 3

LOG :9315.29 9316.82 1.52 Area code : 5

FDEPTH: 29 31 GearCond.cod

BDEPTH: 29 31 Vertical Code

Towing dir: 234e Wire Total catch: 60.68 CATCH/HOUR: 121.36 Sorted: Ka

CATCH/HOUR % OF TOT. C SPECIES SAMP Chloroscombrus chrysurus
Brachydeuterus auritus
Selene dorsalis
Sphyraena quachancho
Selar crumenophthalmus
Portunus validus
Caranx senegallus
Sardinella maderensis - Juv.
Pagrus caeruleostictus
Sepia officinalis hierredda
Pseudupeneus prayensis
Balistes capriscus
Calooides decadactylus
Pcmadasys jubelini
Scomberomorus tritor
Priscanthus arenatus
Alloteuthis africana
Penaeus notialis
Sepiella ornata
Syacium micrurum
Saurida brasiliensis
Starfish
Scoulbarides berklotsii numbers 1026 458 veight 72.10 21.36 7.38 4.08 3.00 2.06 6.61 6.62 1.38 1.02 1.02 0.94 0.74 0.66 0.24 0.20 0.16 0.12 0.06 0.04 0.04 0.04 0.04 59.41 17.60 6.08 3.36 2.54 2.47 1.70 1.33 1.14 0.84 0.77 0.61 0.54 0.20 0.16 90 16 20 12 8 20 10 2 8 8 4 4 4 2 0.10 0.05 0.03 0.03 2 6 2 12 Starfish Scyllarides herklotsii 0.02 0.02 121.36 99.98 Total

DR. FI	RIDI	JOF	NAN	ISEN			PROJECT: IG				PROJECT STATION:			ON:	598	
DATE:	21/	6/04				C	EA	R TY	E:	BT :	No:15	POS	ITION:La	t	N	400
		star	t	sto	9	dura	ti	on					Lo	ng	E	625
TIME	:19	:37:	02	16:0	7:06	30)	[min]	P	urp	ose cod	le:	3			
LOG	:93	26.1	3	9327	.82	1.6	8		A	rea	code	:	5			
FDEPT	1:	4	7		49				Q	ear	Cond.co	ode:				
BDEPTI	1:	4	7		49				V	ali	dity co	de:				
	To	wing	di	r:	90ø	Wir	e	out:	165	m	Speed.	3	kn*10			
Sor	- nd	- 1	Ko	,	Tr	otal	ca	tch:		17	. 33	CAT	CH/HOUR:		34	. 66

SPECIES

Sepia officinalis hierredda Paragaleus pectoralis Brachydeuterus auritus Illex coindetii Pagrus caeruleostictus Alloteuthis africana Priacanthus arenatus Epinephelus aeneus Selar crumenophthalmus Saurida brasiliensis Chloroscombrus chrysurus Grammoplites gruueli Syacium micrurum Citharus linguatula Octopus vulgaris Liocarcinus sp Bathygobius paganellus C R A B S Penaeus notialis Calappa sp. Lepidorigia carolae 'Spider crab' Pontocaris lacazei Sicyonia galeata Antennarius sp Scyllarides herklotsii SPECIES % OF TOT. C SAMP 18.10 4.70 1.84 1.84 numbers 38 52.22 13.56 5.31 5.31 5.08 4 32 20 4.62 3.87 3.17 1.15 332 1.60 1.34 1.10 0.40 0.38 0.26 0.14 0.10 0.08 0.06 0.04 0.04 0.04 0.02 0.02 0.02 0.02 30 110 1.15 6 4 58 20 2 20 8 4 2 4 6 0.81 0.75 0.40 0.29 0.23 0.17 0.12 0.12 0.06 0.06 0.06 0.06 Total 34.66 100.02

DR. FE			NSEN			1	PROJECT	:IG	P	ROJEC	T STAT	: NOIT	599
DATE: 2		0.0000			GE	AR TY	PE: BT	No:15	POS	MOITI	I:Lat	N	356
		tart	sto		durat:	ion					Long	E	627
TIME	:17:	06:50	17:	6:33	30	(min)	Purp	ose co	de:	3	_		
LOG	:933	4.43	9336	.06	1.64		Area	code	:	5			
FDEPTH	1:	79		82			Gear	Cond.c	ode:				
BDEPTH	I:	79		82			Vali	dity c	ode:				
	Tow	ing d	ir:	900	Wire	out:	245 m	Speed	: 3	kn*1	0		

39.71

CATCH/HOUR:

SPECIES	CATCH	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Mustelus mustelus	20.90	2	26.32	
Ariomma bondi	15.00	354	18.89	
Alloteuthis africana	10.76	4612	13.55	
Squatina oculata	6.70	6	8.44	
Sepia officinalis hierredda	5.06	30	6.37	
Trichiurus lepturus	2.68	42	3.37	
Lepidotrigla cadmani	2.52	76	3.17	
Illex coindetii	2.06	24	2.59	
Scorpaena scrofa	2.00	6	2.52	
Priacanthus arenatus	1.64	36	2.06	
Dentex congoensis	1.52	26	1.91	
Uranoscopus albesca	1.32	18		
Fistularia petimba	1.02	10	1.28	
Serranus accraensis	0.84	32	1.06	
Sea urchins (waek spines)	0.80	314	1.01	
Raja miraletus	0.72	4	0.91	
Citharus linguatula	0.54	98		
Pentheroscion mbizi	0.46	4	0.58	
Lepidotrigla carolae	0.40	26	0.50	
Grammoplites gruveli	0.38	16	0.48	
Saurida brasiliensis	0.36	74	0.45	
Calappa pelii	0.30	2	0.38	
Syacium micrurum	0.28	48		
Pseudupeneus prayensis	0.22	6	0.28	
Lophiodes kempi	0.18	2	0.23	
Dentex angolensis	0.16	2	0.20	
Sepia juveniles	0.14	6	0.18	
Octopus defilippi	0.08	2	0.10	
Blennius normani	0.08	6	0.10	
Microchirus frechkopi	0.06	2	0.08	
Sphoeroides marmoratus	0.06	6	0.08	
Liocarcinus corrugatus	0.04	2	0.05	
Bathygobius paganellus	0.04	4	0.05	
Parapenaeus longirostris	0.04	8	0.05	
DIOGENIDAE	0.02	2	0.03	
Scyllarides herklotsii	0.02	2	0.03	
Physiculus huloti	0.02	2	0.03	
Total	79.42		100.02	

		JOF NAI	APEM			ROJECT: IG	PROJECT STAT	TON:	600
DATE: 2	22/	6/04		GE	AR TYPE	: BT No:15	POSITION: Lat	N	349
		start		durat	ion		Long	E	640
TIME	:06	:27:21	06:57:03	30	(min)	Purpose of	code: 3		
LOG	:94	20.75	9422.31	1.56		Area code	≥ : 5		
FDEPTH	ł:	135	136			GearCond.	.code:		
BDEPTH	1:	135	136			Validity	code:		
	To	wing d:	ir: 90ø	Wire	out: 4	100 m Spee	ed: 30 kn*10		
BDEPT				Wire	out: 4				
Sort	ed:	K	To	tal c	atch:	63.75	CATCH/HOUR:	127	. 5

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Arionma bondi	79.50	2478	62.35	
Squatina oculata	13.20	6	10.35	
Illex coindetii	6.72	470	5.27	
Oxynotus centrina	5.42	2	4.25	
Dentex congoensis	4.32	68	3.39	
Pentheroscion mbizi	3.62	36	2.84	
Priacanthus arenatus	2.02	38	1,58	
Raja miraletus	1.88	12	1.47	
Citharus linguatula	1.56	116	1.22	
Pterothrissus belloci	1.34	12	1.05	
Dentex angolensis	1.28	14	1.00	
Brotula barbata	0.90	2	0.71	
Fistularia petimba	0.88	4	0.69	
Zeus faber	0.76	6	0.60	
Uranoscopus albesca	0.72	8	0.56	
Trichiurus lepturus	0.64	8	0.50	
Lepidotrigla cadmani	0.42	8	0.33	
Octopus defilippi	0.40	4	0.31	
Sphoeroides pachgaster	0.26	12	0.20	
Spicara alta	0.24	2 2	0.19	
Calappa sp.	0.24	2	0.19	
Cepola pauciradiatus	0.22	18	0.17	
Lepidotrigla carolae	0.20	6	0.16	
Serranus africana	0.18	2	0.14	
Parapenaeus longirostris	0.16	30	0.13	
Sepia juveniles	0.16	6	0.13	
Bathygobius paganellus	0.12	12	0.09	
Pontinus accraensis	0.12	2	0.09	
Microchirus frechkopi	0.02	4	0.02	
Total	127.50		99.98	

	220 2020 200 200			
DR. FRIDTJOF NANSEN DATE: 22/ 6/04 GEAR T	PROJECT:IG PE: BT No:1	PR 5 POSI	OJECT STATION:Lat N	N: 601 358
start stop duration TIME :08:54:29 09:24:40 30 (min			Long E	
LOG :9436.39 9437.87 1.47	Area cod			
FDEPTH: 77 77 BDEPTH: 77 77	GearCond			
BDEPTH: 77 77 Towing dir: 90¢ Wire out	Validity : 250 m Spe	ed: 30	kn*10	
Sorted: Kg Total catch				71.04
SPECIES	CATCH AL	ot m	% OF TOT. C	CAMP
	weight n	umbers		SAMP
Sepia officinalis hierredda Jepidotrigla cadmani	11.30 8.74	32 226	15.91 12.30	
Squatina oculata	7.96	4		
Ariomma bondi Dentex angolensis	6.58 4.80	124 58	9.26 6.76	
Alloteuthis africana	4.54	2270	6.39	
Pentheroscion mbizi	4.48	36 78	6.31 4.53	
Sepia juveniles Sitharus linguatula	2.64	188	3.72	
Priacanthus arenatus Raja miraletus	2.34	50 8	3.29 2.34	
Trichiurus lepturus	1.48	24		
Grammoplites gruveli	1.08	48	1.52	
Lepidotrigla carolae Parapandalus narval	1.04	58 408	1.46	
Dentex congoensis	0.98	24	1.38	
Fistularia petimba Illex coindetii	0.96	12 10	1.35	
Jranoscopus albesca	0.72	10	1.01	
Syacium micrurum Sea urchins (waek spines)	0.68	160 254		
Serranus accraensis	0.46	20	0.65	
Chilomycterus spinosus mauret. Codaropsis eblanae	0.42	2 20		
odaropsis edianae ophiodes kempi	0.28	6	0.39	
Dicologoglossa cuneata	0.24	2		
Maja goltziana Scorpaena scrofa	0.22	2 4	0.31	
Physiculus huloti	0.18	4	0.25	
Sathygobius paganellus Saurida brasiliensis	0.18	26 28	0.25	
eseudupeneus prayensis	0.16	2	0.23	
Brotula barbata Sphoeroides pachgaster	0.14	2 2	0.20	
Jenus verrucosa	0.08	4 2	0.11	
Cardita ajar	0.04	2 6	0.06	
Parapenaeus longirostris Lagocephalus laevigatus	0.04	2	0.06	
Blennius normani	0.04	20	0.06	
Decapterus punctatus Scyllarides herklotsii	0.02	2	0.03	
	0.02	4		
Sphoeroides marmoratus	0.02	2	0.03	
Sphoeroides marmoratus Serranus africana —	0.02		0.03	
Sphoeroides marmoratus Serranus africana —	0.02	2	0.03	
Sphoeroides marmoratus Serranus africana Total DR. FRIDTJOF NANSEN	0.02 0.02 71.04 PROJECT: IG	2 2	0.03 0.03 100.02	N: 602
Sphoeroides marmoratus Serranus africana Total DR. FRIDTJOF NANSEN DATE: 22. 6/04 start stop duration	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1	2 2 PR 5 POSI	0.03 0.03 100.02	405
Sphoeroides marmoratus Serranus africana Total DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (mix	0.02 0.02 71.04 PROJECT: IG (PE: BT No:1	2 2 PR 5 POSI	0.03 0.03 100.02	405
### Sphoeroides marmoratus Serranus africana	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 n) Purpose Area cod GearCond	PR 5 POSI code: e :	0.03 0.03 100.02	405
Spheroides marmoratus Serranus africana Total DR. FRIDTJOF NANSEN DATE: 22/ 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (mix	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Validity	PR 5 POSI code: e : .code: code:	0.03 0.03 100.02 COJECT STATION TION:Lat N Long E	405
### Sphoeroides marmoratus	0.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod GearCond Validity 130 m Spe	PR 5 POSI code: e : .code: code: ed: 30	0.03 0.03 100.02 ROJECT STATION TION:Lat N Long E 3 5	405 640
Sphoeroides marmoratus Serranus africana Potal DR. FRIDTJOF NANSEN DATE:22/ 6/04 GEAR T: start stop duration TIME:10:56:58 11:28:33 30 (mix LOG:9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 90c Wire out	0.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod GearCond Validity 130 m Spe 17.93	PR 5 POSI code: e : .code: code: code: OUR	0.03 0.03 100.02 ROJECT STATION TION:Lat N Long E 3 5	405 640 35.86
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:22/ 6/04 GEAR T Start stop duration TIME:10:58:58 11:28:33 30 (mir LOG:9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out Sorted: Kg Total catch	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n	2 2 2 2 PR 5 POSI code: e : code: ed: 30 CATC	0.03 0.03 100.02 coject station tion:Lat n Long E 3 5 kn*10 ch/Hour:	405 640 35.86
Spheeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:227 6704 Start stop duration TIME:10:56:58 11:28:33 30 (mir LOG: 9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 90¢ Wire out Sorted: Kg Total catch	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54	PR 5 POSI code: e : .code: code: code: OUR	0.03 0.03 100.02 (OJECT STATIOI TION:Lat N Long E 35 kn*10 **H/HOUR:	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana Total DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME:10:58:58 11:28:33 30 (min LOG: 9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 90c Wire out Sorted: Kg Total catch SPECIES Gelene dorsalis Scemberomorus tritor Srachydeuterus auritus	O.02 O.02 71.04 PROJECT:IG (PE: BT No.1 Purpose Area cod GearCond Validity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68	PR 5 POSI code: e : .code: ed: 30 CATO	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783
Sphoeroides marmoratus Serranus africana Potal DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (mi) LGG :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out. Sorted: Kg Total catch SPECIES Gelene dorsalis Secemberomorus tritor Srachydeuterus auritus Sepelala ornata	O.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66	PR 5 POSI code: e : .code: code: ed: 30 CATC	0.03 0.03 100.02 (OJECT STATIO) (TION:Lat N Long E 3 5 kn*10 **OF TOT. C 42.28 21.03 15.84 4.63	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:13 30 (mi) LCG: 9449.40 9450.95 1.53 FDEPTH: 39 40 BDEETH: 39 40 Towing dir: 900 Wire out. Sorted: Kg Total catch SPECIES Selene dorsalis Scomberomorus tritor Special ornata Scorpaena scrofa Sardinella ornata Scorpaena scrofa Sardinella maderemsis	O.02 0.02 71.04 PROJECT.IG (PE: BT No:1 Purpose Area cod GearCond Validity : 130 m Spe : 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94	PR 5 POSI code: e : .code: code: dd: 30 CATC	0.03 0.03 100.02 COJECT STATION INTION:LAL N Long E 3 5 kn*10 **H/HOUR: **OF TOT. C 42.28 21.03 15.84 4.63 2.84 2.62	405 640 35.86 SAMP 2783 2781
phoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:227 6/04 GEAR T Start stop duration TIME :10:58:58 11:28:33 30 (mui LCG :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out Sorted; Kg Total catch SPECIES Section of the control of the c	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.02 0.94 0.86	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana Potal DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (min LOG :9449.40 9450.95 1.53 FDEPTH: 39 40 EDEPTH: 39 40 EDEPTH: 39 40 Towing dir: 900 Wire out Sorted: Kg Total catch SPECIES Selene dorsalis Scembercmorus tritor Srachydeuterus auritus Sepiella ornata Scorpaena scrofa Sardinella maderensis Priacanthus arenatus Priacanthus	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:227 6/04 Start stop duration TIME :10:58:58 11:28:133 30 (min LOG :9449.40 9450.95 1.53 FDEPTH: 39 40 Towing dir: 900 Wire out. Sorted: Kg Total catch SPECIES Selene dorsalis Scomberomorus tritor Srachydeuterus auritus Sepiella ornata Sardinella maderensis Priacanthus arenatus Chloroscomburs chrysurus Sagrus caeruleostictus Selene rome maderensis Priacanthus arenatus Chloroscomburs chrysurus Sagrus caeruleostictus Selene rome maderenophthalmus	0.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod GearCond Valldaty 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.02 0.94 0.86 0.48 0.42	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 368 2 2 2 6 6 8 4 4 4 4	0.03 0.03 100.02 COJECT STATION INTION: Lat N Long E 3 5 kn*10 eH/HOUR: 4.03 15.84 4.63 2.84 2.62 2.40 1.34 1.17	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana Potal DR. FRIDTJOF NANSEN DATE:22/ 6/04 start stop duration TIME :10:58:58 11:28:33 30 (min LOG :9449.40 9450.95 1.53 FDEPTH: 39 40 EDEPTH: 39 toward of the service of the serv	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:133 30 (mir LOG :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 BDEPTH: 39 40 BDEPTH: 39 40 Sorted: Kg Total catch SPECIES Scelene dorsalis Scemberomorus tritor Srachydeuterus auritus Sepiella ornata Scorpaena scrofa Jardinella maderensis Priscanthus arenatus Chloroscombrus chrysurus Pragrus caeruleostictus Selar crumenophthalmus Alloteuthis africana LE LY F I S H Seedubpeneus prayensis	O.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Validity : 130 m Spe : 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.86 0.48 0.42 0.28 0.14 0.14	2 2 2 2 PPR 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 COJECT STATION LONG E 3 5 kn*10 CH/HOUR: 42.28 21.03 15.84 4.63 2.84 2.62 2.40 2.40 1.34 1.17 0.78 0.39 0.39	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME:10:58:58 11:28:33 30 (min LOG:9449.40 9450.95 1.53 FDEPTH: 39 40 EDEPTH: 39 40 Towing dir: 900 Wire out Sorted: Kg Total catch Serecies Scene dorsalis Scemberomorus tritor Stachydeuterus auritus Sepiella ornata Scorpaena scrofa Sardinella maderensis Priacanthus arenatus Chloroscombrus chrysurus Pagrus Caeruleositetus Selar crumenophthalmus Alloteuthis africana 1 E L L Y F I S H Seaudupeneus prayensis Starchydeuterus auritus Seachydeuterus africana 1 E L L Y F I S H Seaudupeneus prayensis Starchydeuterus auritus Suv.	0.02 0.02 71.04 PROJECT: IG (PE: BT No:1 1) Purpose Area cod GearCond Valladity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.66 1.66 1.02 0.94 0.86 0.86 0.48 0.42 0.28 0.14	2 2 2 2 PPR 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana Potal DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (min LOG :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out Sorted: Kg Total catch SPECIES Scenberomorus tritor Srachydeuterus auritus Sepiella ornata Scorpaena scrofa Sardinella maderensis Priacanthus arenatus Chloroscombrus chrysurus Pagrus caeruleositetus Selar crumenophthalmus Alloteuthis africana JE L L Y F I S H Pseudupeneus prayensis Brachydeuterus auritus Juv. Litharichthys stampflii Decapterus punctatus Juv.	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.42 0.28 0.14 0.12 0.08 0.06	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:227 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (mix LGG :9449.40 9450.95 1.53 FDEPTH: 39 40 Towing dir: 900 Wire out. Sorted: Kg Total catch SPECIES Selene dorsalis Secmberomorus tritor Serdindlar auritus Sepiella ornata Scorpaena scrofa Sardinella maderensis Priacanthus arenatus Chloroscombrus chrysurus Pagrus caeruleostictus Selar crumenophthalmus Alloteuthis africana JELLYFISH Pseudupeneus prayensis Brachydeuterus auritus Strachydeuterus auritus Selar crumenophthalmus Alloteuthis africana JELLYFISH Pseudupeneus prayensis Brachydeuterus auritus Surchydeuterus auritus Strachydeuterus auritus Strachydeuterus suritus Strachydeuterus auritus Strachydeuterus suritus Suv. Starfish	0.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod GearCond Validity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.86 0.48 0.42 0.28 0.14 0.12 0.06 0.06 0.06	2 2 2 2 PPR 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 COJECT STATION ITION:Lat N Long E 3 5 kn*10 H/HOUR: 42.28 21.03 15.84 4.63 2.84 2.62 2.40 1.34 1.17 0.78 0.39 0.39 0.33 0.22 0.17 0.17	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:227 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (mir LOG :9449.40 9450.95 1.53 FDEPTH: 39 40 Towing dir: 900 Wire out. Sorted: Kg Total catch Serical Seric	0.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod Gercond Validaty 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.42 0.28 0.14 0.14 0.14 0.10 0.06 0.06 0.06 0.06 0.06	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 COJECT STATION ITION:Lat N Long E 3 5 kn*10 H/HOUR: 4.03 2.84 4.63 2.84 4.63 2.84 4.63 2.84 1.17 0.78 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.39 0.17 0.17 0.17	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana Potal DR. FRIDTJOF NANSEN DATE:22/ 6/04 start stop duration TIME :10:58:58 11:28:33 30 (min LOG :9449.40 9450.95 1.53 FDEPTH: 39 40 EDEPTH: 39 40 EDETH: 39 4	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.49 0.42 0.28 0.14 0.12 0.06 0.06 0.06 0.06 0.04 0.04	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 MOJECT STATION Long E 3 5 kn*10 H/HOUR: * OF TOT. C 42.28 21.03 15.84 4.63 2.84 4.63 2.40 2.40 1.34 1.17 0.78 0.39 0.39 0.33 0.39 0.39 0.17 0.17 0.17 0.11	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (mir LOG :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out Sorted: Kg Total catch Section of the service of the s	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Validity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.42 0.28 0.14 0.12 0.06 0.06 0.06 0.06 0.06 0.04 0.04 0.04 0.04 0.04	2 2 2 2 PPR	0.03 0.03 100.02 COJECT STATION Long E 3 5 kn*10 H/HOUR: 42.28 21.03 15.84 4.63 2.84 2.62 2.40 1.34 1.17 0.78 0.39 0.39 0.33 0.22 0.17 0.17 0.17 0.11 0.11 0.06	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:227 6/04	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Valldity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.42 0.28 0.14 0.12 0.06 0.06 0.06 0.06 0.04 0.04 0.04 0.04 0.02 0.04	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:227 6/04 start stop duration TIME :10:58:58 11:28:33 30 (mi) LGG :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out. Sorted: Kg Total catch Section of the start stop start stop of the start start stop of the start	0.02 0.02 71.04 PROJECT:IG (PE: BT No:1 1) Purpose Area cod GearCond Validity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.42 0.28 0.14 0.12 0.06 0.06 0.06 0.06 0.06 0.04 0.04 0.04	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana DR. FRIDTJOF NANSEN DATE:227 6/04 start stop duration TIME :10:58:58 11:28:33 30 (mi) LGG :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out Sorted: Kg Total catch Secenberomorus tritor Scomberomorus tritor Sechodeuterus auritus Secipiella ornata Scorpaena scrofa Sardinella maderensis Priacanthus arenatus Alloteuthis africana 1 L Y F I S H Besudupeneus prayensis Brachydeuterus auritus Selar crumenophthalmus Alloteuthis africana 1 L Y F I S H Besudupeneus prayensis Brachydeuterus auritus Scrafish Trammoplites gruveli Scarfish Trammoplites gruveli Scyllarides herklotsii Lepidotrigla carolae Fodaropsis eblanae Penaeus notialis Lagocephalus laevigatus P O L Y C H A E T A Syacium micrumm Sicyonia galeata	0.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod GearCond Validity 130 m Spe 17.93 CATCH/H weight 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.86 0.48 0.42 0.28 0.14 0.12 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.0	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 COJECT STATION Long E 3 5 kn*10 H/HOUR: * OF TOT. C 42.28 21.03 15.84 4.63 2.84 2.62 2.40 1.34 1.17 0.78 0.39 0.39 0.39 0.39 0.39 0.17 0.17 0.17 0.17 0.17 0.17 0.11 0.11 0.06 0.06 0.06 0.06 0.06	405 640 35.86 SAMP 2783 2781
Spheeroides marmoratus Serranus africana Total DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (min LOC :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out Sorted: Kg Total catch SPECIES Selene dorsalis Scomberomorus tritor Brachydeuterus auritus Sepiella ornata Scorpaena scrofa Sardinella maderensis Priacanthus arenatus Chloroscombrus chrysurus Pagrus caeruleostictus Selar crumenophthalmus Alloteuthis africana J E L L Y F I S H Pseudupeneus prayensis Brachydeuterus auritus Juv. Starfish Drammoplites gruveli Scyllarides herklotsii Lepidotrigla carolae Todaropsis eblanae Penaeus notialis Lagocephalus laevigatus F O L Y C H A E T A Synclus micrumum Sicyona galeata 'Spider crab'	0.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod Gearch/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.42 0.28 0.14 0.14 0.12 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.0	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 10	405 640 35.86 SAMP 2783 2781
Spheeroides marmoratus Serranus africana Total DR. FRIDTJOF NANSEN DATE:22/ 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (min LCC :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 BDEPTH: 39 40 BDEPTH: 39 40 SOME SOME SERVICE S	0.02 0.02 71.04 PROJECT: IG (PE: BT No:1 1) Purpose Area cod GearCond Validity 130 m Spe 17.93 CATCH/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.42 0.28 0.14 0.12 0.06 0.06 0.06 0.06 0.06 0.04 0.04 0.04 0.04 0.04 0.06 0.07 0.06 0.07 0.07 0.08 0.09	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 COJECT STATION Long E 3 5 kn*10 H/HOUR: * OF TOT. C 42.28 21.03 15.84 4.63 2.84 4.63 2.84 4.63 2.40 2.40 1.34 1.17 0.78 0.39 0.39 0.33 0.22 0.17 0.17 0.17 0.17 0.11 0.11 0.11 0.06	405 640 35.86 SAMP 2783 2781
Sphoeroides marmoratus Serranus africana Total DR. FRIDTJOF NANSEN DATE:22, 6/04 Start stop duration TIME :10:58:58 11:28:33 30 (mi) LCG :9449.40 9450.95 1.53 FDEPTH: 39 40 BDEPTH: 39 40 Towing dir: 900 Wire out	0.02 0.02 71.04 PROJECT.IG (PE: BT No:1 1) Purpose Area cod Gearch/H weight n 15.16 7.54 5.68 1.66 1.02 0.94 0.86 0.48 0.42 0.28 0.14 0.14 0.12 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.0	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.03 0.03 100.02 COJECT STATION ITION:Lat N Long E 3 5 kn*10 H/HOUR: 42.28 21.03 15.84 4.63 2.84 2.62 2.40 1.34 1.17 0.78 0.39 0.39 0.39 0.39 0.39 0.39 0.17 0.17 0.17 0.17 0.11 0.11 0.11 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.06	405 640 35.86 SAMP 2783 2781

DATE: 22/ 6/04 GEAR TO	PROJECT:IG (PE: BT No:1	PRO 5 POSTS	JECT STAT	ION: 603 N 406
start stop duration			Long	E 655
TIME :14:30:53 15:00:42 30 (min LOG :9477.77 9479.49 1.71	 Purpose Area cod 	code: 3		
FDEPTH: 41 41	GearCond	l.code:		
BDEPTH: 41 41 Towing dir: 90¢ Wire out	Validity : 152 m Spe	code: ed: 30 k	n+10	
Sorted: 9 Kg Total catch	38.43	CATCH	MOUR:	76.86
SPECIES	CATCH/H	IOTE 4	OF TOT.	CIMD
	weight n	umbers		
Selene dorsalis Brachydeuterus auritus	31.60 31.40	214 1036		
Selar crumenophthalmus	3.78	26	4.92	
Priacanthus arenatus Chloroscombrus chrysurus	1.54	6 12	2.00 1.90	
Alectis alexandrinus	0.94	2	1.22	
Sepia officinalis hierredda Sphyraena guachancho	0.92	2 2 6	1.20	
Sepiella ornata	0.82	140	1.07	
Sardinella maderensis Scomberomorus tritor	0.66	8 2	0.86	
Epinephelus aeneus	0.42	2	0.55	
Caranx crysos Alloteuthis africana	0.32	70 2	0.42	
Fistularia petimba	0.28		0.36	
Parapenaeopsis atlantica Grammoplites gruveli	0.26	70 14	0.34	
Todaropsis eblanae	0.18	2	0.23	
Saurida brasiliensis Penaeus notialis	0.06	26 2	0.08	
Serranus accraensis	0.04	14	0.05	
Syacium micrurum Decapterus punctatus	0.04	4 34	0.03	
Scyllarides herklotsii Sicyonia galeata	0.02	2 2	0.03	
		2		
Total	76.86		100.00	
DR. FRIDTJOF NANSEN				
DATE:22/ 6/04 GEAR TY start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72	Purpose Area cod	code: 3	Long	N 401 E 655
DATE:22/ 6/04 GEAR TY start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65) Purpose Area cod GearCond Validity	code: 3 e : 5 .code: code:	Long	N 401 E 655
DATE:22/ 6/04 GEAR TO STATE STOP DATE:22/ 6/04 GEAR TO STATE STOP DATE: 16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 GEAR TOWING dir: 900 Wire out:	Purpose Area cod GearCond Validity 205 m Spe	code: 3 e :5 .code: code: ed:30 k	n*10	N 401 E 655
DATE:22/ 6/04 GEAR TY start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65	Purpose Area cod GearCond Validity 205 m Spe	code: 3 e :5 .code: code: ed:30 k	n*10	N 401 E 655
DATE:22/ 6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490:80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Kg Total catch:	a) Purpose Area cod GearCond Validity 205 m Spe 29.41	code: 3 e : 5 code: code: ed: 30 k	n*10 /HOUR:	58.82
DATE:22/ 6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Kg Total catch:	n) Purpose Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n	code: 3 e : 5 .code: code: code: ed: 30 k CATCH CUR % umbers	n=10 /HOUR: OF TOT, C	58.82
DATE:22/ 6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490:80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Kg Total catch:	a) Purpose Area cod GearCond Validity 205 m Spe 29.41	code: 3 e : 5 code: code: ed: 30 k	n*10 /HOUR:	58.82
DATE:22/ 6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 FDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Kg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepia officinalis hierredda	Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28	code: 3 e : 5 .code: code: code: code: d: 30 k CATCH CUR % umbers 2434 2848 10	of Tot. c	58.82
DATE:22/ 6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 FDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Rg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepia officinalis hierredda Pentheroscion mbizi Selene dorsalis	Purpose Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00	code: 3 e : 5 code: code: code: de: 30 k CATCH	0F TOT. 0	58.82
DATE: 22/ 6/04 GEAR TO start stop duration TIME : 16:43:45 17:13:31 30 (mir LOG : 9490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Kg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepia officinalis hierredda Pentheroscion mblzi Selene dorsalis Lepidotrigla cadmani	Purpose Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.50	code: 3 e : 5 code: code: code: code: code: code: ed: 30 k CATCH CUR * umbers 2434 2848 10 18 8 8 34	DOING N*10 /HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.23 2.58	58.82
DATE:22/ 6/04 GEAR TO STATE STOP DATE:27 6/04 GEAR TO STATE STOP DATE: 31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 FDEPTH: 65 65 FOWING dir: 900 Wire out: Sorted: Kg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepia officinalis hierredda Pentheroscion mbizi Selene dorsalis Lepidotrigla cadmani Illex coindetii Ariomma bondi juv.	Purpose Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.52 1.30	code: 3 e : 5 code: code: code: code: code: d: 30 k CATCH CUR umbers 2434 2848 10 18 8 8 34 14 58	DOING TOT. C 51.07 11.02 3.88 3.40 3.23 2.58 2.21 1.94	58.82
DATE:22/6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 65 Towing dir: 906 Wire out: Sorted: Kg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepia officinalis hierredda Pentheroscion mbizi Seleme dorsalis Lepidotrigla cadmani Illex coindetii Ariomma bondi juv. Decapterus punctatus	Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.90 1.52 1.30 1.14	code: 3 e : 5 .code: code: code: dcde: code: code: dcde: 30 k	n*10 /HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.23 2.58 2.21 1.94	58.82
DATE:22/ 6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 Towing dir; 900 Wire out: Sorted: Kg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepia officinalis hierreda Pentheroscion mbizi Selene dorsalis Lepidotrigla cadmani Tilex coindetii Ariomma bondi juv. Decapterus punctatus Cymbium cymbium Serranus accraensis	Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.90 1.52 1.30 1.14 1.10	code: 3 e : 5	n*10 /HOUR: OF TOT. C 51.07 11.02 3.68 3.40 3.23 2.58 2.21 1.94 1.87 1.70	58.82
DATE:22/ 6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 FDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Kg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepia officinalis hierredda Pentheroscion mbizi Selene dorsalis Lepidotrigla cadmani Illex coindetii Ariomma bondi juv. Decapterus punctatus Cymbium cymbium	Purpose Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.90 1.52 1.30 1.14 1.10 1.00 1.00 0.98	code: 3 e : 5. code: cod	n*10 /HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.70	58.82
DATE:22/6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Kg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepla officinalis hierredda Pentheroscion mbizi Selene dorsalis Lepidotrigla cadmani Illex coindetii Ariomma bondi juv. Decapterus punctatus Cymbium cymbium Serramus accraensis Parapenaeus longirostris Ariomma bondi Priacanthus arenatus	Area cod GearCond Validity 205 m 5pe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.90 1.52 1.30 1.14 1.10 1.00 0.98 0.96 0.88	code: 3 e : 5 .code: code: cod	n*10 /HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.70 1.63 1.50	58.82
DATE:22/6/04 GEAR TO STATE STOP DATE:27/6/04 STATE STOP DATE:27/6/25/25/25/25/25/25/25/25/25/25/25/25/25/	Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.52 1.30 1.14 1.10 1.00 0.98 0.96	code: 3 e : 5	n*10 //HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.25 82.21 1.94 1.87 1.70 1.67 1.63	58.82
DATE:22/6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 FDEPTH: 65 F	Purpose Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.52 1.30 1.14 1.10 1.00 1.00 0.98 0.96 0.88 0.66 0.62 0.54	code: 3 e : 5 . code: co	n*10 //HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.258 2.21 1.94 1.87 1.70 1.70 1.63 1.50 1.12	58.82
DATE:22/6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 BEPTH: 65 65 FOWNING dir: 900 Wire out: Sorted: Expression of the start of	Area cod GearCond Validity 205 m 5pe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.90 1.52 1.30 1.14 1.10 0.98 0.96 0.88 0.66	code: 3 e : 5 .code: code: cod	n*10 /HOUR: OF TOT. C 51.07 11.02 3.68 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.70 1.63 1.50 1.12	58.82
DATE:22/6/04 GEAR TO STATE STOP DATE:27/6/04 STATE STOP DATE:21.33 30 (mir 150:2940.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 BDEPTH: 65 65 FOR Towing dir: 900 Wire out: Sorted: Egy Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana Sepia officinalis hierredda Pentheroscion mbizi Selene dorsalis Lepidotrigla cadmani Illex coindetii Ariomma bondi juv. Decapterus punctatus Cymbium cymbium Serranus accraensis Parapenaeus longirostris Ariomma bondi Priacanthus arenatus Raja miraletus Trichiurus lepturus Portunus validus Grammoplites gruveli Citharus linguatula Chilemycterus spinosus mauret.	Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.52 1.30 1.14 1.10 1.00 0.98 0.96 0.88 0.66 0.62 0.54 0.54 0.55 0.50	code: 3 e : 5 .code: code: cod	Doing n*10 //HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.67 1.63 1.50 1.12 1.05 0.92 0.88 0.85	58.82
DATE:22/6/04 GEAR TO STATE STOP DATE:27/6/04 GEAR TO STATE STOP DATE:25. TOWN TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 GEARTH GEART GEARTH GEARTH GEARTH GEARTH GEARTH GEARTH GEARTH GEARTH GEARTH	Purpose Area cod GearCond Validity 205 m Spe 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.90 1.14 1.10 1.00 1.00 0.98 0.66 0.62 0.54 0.54 0.55	code: 3 e : 5 . code: co	n*10 //HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.70 1.63 1.50 0.112 1.05 0.92 0.88	58.82
DATE:22/6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir 19:50:19490.80 9492.52 1.72 FDEPTH: 65 65 65 BDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Eg Total catch: SPECIES Brachydeuterus auritus Alloteuthis africans Sepia officinalis hierredda Pentheroscion mbizi Selene dorsalis Lepidotrigla cadmani Illex coindetii Ariomma bondi juv. Decapterus punctatus Cymbium cymbium Serranus accraensi Parapenaeus longirostris Ariomma bondi pricacanthus arenatus Raja miraletus Trichiurus lepturus Portunus validus Grammoplites gruveli Citharus linguatula Chilomycterus spinosus mauret. Lophiodes kempi Sepia juveniles Lagocephalus laevigatus	Purpose Area cod GearCond Validity 205 m Spec 29.41 CATCH/H Weight n 30.04 6.48 2.28 2.00 1.90 1.52 1.30 1.14 1.10 1.00 1.00 9.8 0.96 0.88 0.66 0.62 0.54 0.52 0.50 0.40 0.38 0.30	code: 3 e : 5 . code: co	n*10 /HOUR: OF TOT. C 11.02 3.88 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.67 1.63 1.50 0.112 1.05 0.92 0.92 0.92 0.98 0.85 0.68	58.82
DATE:22/6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 65 BDEPTH: 65 65 FORM TOWNING DEPTH: 65 FORM T	Purpose Area cod GearCond Validity 205 m 5pe 29.41 CATCH/H Weight 1	code: 3 e : 5 . code: co	n*10 /HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.70 1.63 1.50 0.112 1.05 0.92 0.92 0.98 0.85 0.68 0.65 0.51 0.51	58.82
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DATE:22/6/04 GEAR TO start stop duration TIME :16:43:45 17:13:31 30 (mir 19:490.80 9492.52 1.72 FDEPTH: 65 65 65 EDEPTH: 65 65 Towing dir: 900 Wire out: Sorted: Eq. Total catch: SPECIES Brachydeuterus auritus Alloteuthis africana sepia officinalis hierredda Pentheroscion mbizi Selene dorsalis Lepidotrigla cadmani Tilex coindetii Ariomma bondi juv. Decapterus punctatus Cymbium cymbium Serramus accraensis Parapenaeus longirostris Ariomma bondi Priacanthus arenatus Raja miraletus Trichiurus lepturus Portunus validus Grammoplites gruveli Citharus linguatula Chilomycterus spinosus mauret. Lophiodes kempi Sepia juveniles Lagocephalus laevigatus Saurida brasiliensis Syacium micrurum Cymbium ap. Liocarcinus corrugatus Brotula barbata Calappa sp. Lepidotrigla carolae	Area cod GearCond Validity 205 m Spec 29.41 CATCH/H weight n 30.04 6.48 2.28 2.00 1.90 1.52 1.30 1.14 1.10 1.00 1.00 1.00 1.00 1.00 1.0	code: 3 e : 5. code: cod	n*10 /HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.70 1.63 1.50 0.112 1.05 0.92 0.98 0.65 0.68 0.65 0.51 0.51	58.82
DATE:22/6/04 GEAR TO STATE STOP DATE:27/6/04 USART TIME:16:43:45 17:13:31 30 (mir 10:3490.80 9492.52 1.72 FDEPTH: 65 65 BDEPTH: 65 65 BDEPTH: 65 65 BDEPTH: 65 65 FOR Towing dir: 900 Wire out: Sorted: Eq Total catch: SPECIES Frachydeuterus auritus Alloteuthis africana Sepia officinalis hierredda Pencheroscion mbizi Selene dorsalis Lepidotrigla cadmani Illex coindetii Ariomma bondi juv. Decapterus punctatus Cymbium cymbium Serramus accraensis Parapenaeus longirostris Ariomma bondi Priacanthus arenatus Raja miraletus Trichiurus lepturus Portunus validus Grammoplites gruveli Citharus linguatula Chilomycterus spinosus mauret. Lophicdes kempi Sepia juveniles Saurida brasiliensis Syacium micrurum Cymbium ap. Llocarcinus corrugatus Brotula barbata Calappa sp. Lepidotrigla carolae Zeus faber	### Purpose Area cod GearCond Validity 205 m Spe	code: 3 e : 5	n*10 /HOUR: OF TOT. C 11.02 3.88 3.40 3.23 2.58 2.21 1.94 1.87 1.70 1.70 1.70 1.67 3.1.50 0.92 0.88 0.85 0.65 0.51 0.51 0.51 0.41 0.44 0.24	58.82
DATE:22/6/04 GEAR TO STATE STOP DATE:22/6/04 GEAR TO STATE STOP DATE:23/13/30 (mir LOG :9490.80 9492.52 1.72 FDEPTH: 65 65 EDEPTH: 65 65 FDEPTH: 65	## Purpose Area cod GearCond Validity 205 m Spe	code: 3 e : 5	n*10 /HOUR: OF TOT. C 51.07 11.02 3.88 3.40 3.258 2.21 1.94 1.87 1.70 1.70 1.63 1.50 1.12 1.05 0.92 0.88 0.85 0.61 0.51 0.51 0.51 0.51 0.51 0.41 0.44 0.24 0.24	58.82
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Sorted: 27 Kg Total catch: 57.15 CATCH/HOUR:

SPECIES	CATC	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Pentheroscion mbizi	44.81	641	41.82	2786
Ariomma bondi	16.35	428	15.26	
Trichiurus lepturus	8.21	113	7.66	2787
Priacanthus arenatus	6.56	105	6.12	
Uranoscopus albesca	3.75	34	3.50	
Todaropsis eblanae	3.49	139	3.26	
Lepidotrigla cadmani	3.30	68	3.08	
Pterothrissus belloci	2.89	26	2.70	
Saurida brasiliensis	2.81	859	2.62	
Illex coindetií	2.66	128	2.48	
Pontinus accraensis	2.29	56	2.14	
Dentex angolensis	2.12	21	1.98	
Citharus linguatula	2.10	113	1.96	
Raja miraletus	2.06	15	1.92	
Dentex congoensis	1.41	23	1.32	
Sepia officinalis hierredda	1.05	30	0.98	
Starfish	0.34	26	0.32	
J E L L Y F I S H	0.23	4	0.21	
Brotula barbata	0.21	2	0.20	
Bembrops greyi	0.19	8	0.18	
Physiculus huloti	0.11	4	0.10	
Liocarcinus corrugatus	0.08	11	0.07	
Bathygobius paganellus	0.08	8	0.07	
Parapenaeus longirostris	0.04	8	0.04	
Scyllarides herklotsii	0.04	4	0.04	
Total	107.18		100.03	

DR. F.	RIDTJOF N	ANSEN		PRO	JECT: IG	P	ROJECT	STAT	'ION:	606
DATE:	23/ 6/04		GEA	R TYPE:	BT No:1	5 POS	ITION:	Lat	N	400
	start	stop	durati	on				Long	E	709
TIME	:08:45:0	8 09:15:03	30	(min)	Purpose	code:	3			
LOG	:9600.11	9601.63	1.52		Area cod	e :	5			
FDEPT	H: 69	68			GearCond	.code:				
BDEPT	H: 69	68			Validity	code:				
	Towing a	dir: 90ø	Wire	out: 20	0 m Spe	ed: 30	kn*10			

30.54 CATCH/HOUR:

61.08

Total catch:

Sorted: 31 Kg

CATCH/HOUR
weight numbers
13.20.0 804
7.92 106
3.48 1688
2.28 22
2.24 56
2.08 52
1.14 50
1.02 4
0.70 18
0.58 24
0.56 6
0.44 82
0.40 18
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Priacanthus arenatus
Trichiurus lepturus
Alloteuthis africana
Pentheroscion mbizi
Lepidotrigla cadmani
Ariomma bondi
Sepia officinalis hierredda
Raja miraletus
Selene dorsalis
Lagocephalus laevigatus
Serranus accraensis
Illex coindetii
Saurida brasiliensis
J E L L Y F I S H
Todaropsis eblanae
citharus linguatula
Chilomycerus spinosus mauret.
Sphoeroides pachgaster
Fistularia petimba
Liocarcinus corrugatus
Decapterus punctatus
Bathygobius paganellus
Parapenaeus longirostris
Lepidotrigla carolae
Grammoplites gruveli
Scyllarides herklotsii
Syacium micrurum
Sea urchins (waek spines)
Blennius normani
Lophiodes kempi
Calappa pelii
Physiculus hulotti
Pagellus bellottii
Pontinus accraensis Brachydeuterus auritus 0.03 61.08 100.02 Total

	RIDTJOE		NSEN			- 1	PROJECT	:IG	P	ROJECT STAT	PION:	607
DATE:	23/ 6/0	04			GE	AR TY	PE: BT	No:15	POS	ITION: Lat	N	406
		art	sto		durat					Long	E	708
TIME	:10:51	1:07	11:2	1:00	30	(min	Purp	ose co	de:	3		
LOG	:9612.	.35	9613	.92	1.56		Area	code		5		
FDEPT	H:	41		41			Gear	Cond. c	ode:			
BDEPT:	H:	41		41			Vali	dity c	ode:			
	Towir	ng d	ir:	90ø	Wire	out:	120 m	Speed	: 30	kn*10		
Sor	ted:	Ke	3	To	tal c	arch:		1.52	CAT	CH/HOUR.	17	0.4

8.52

CATCH/HOUR:

CATCH/HOUR:

117.44

17.04

Total catch:

SPECIES	CATCH	HOUR	% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	6.12	8	35,92	
Brachydeuterus auritus	3.82	262	22.42	
JELLYFISH	1.98	266	11,62	
Priacanthus arenatus	0.92	56	5.40	
Sepiella ornata	0.72	154	4.23	
Raja miraletus	0.68	4	3.99	
Bathygobius paganellus	0.64	8	3,76	
Cymbium cymbium	0.46	74	2.70	
Parapenaeus longirostris	0.36	64	2.11	
Brachydeuterus auritus Juv.	0.32	130	1.88	
Selar crumenophthalmus	0.24	4	1.41	
Illex coindetii	0.16	2	0.94	
Todaropsis eblanae	0.14	10	0.82	
Alloteuthis africana	0.10	8	0.59	
Penaeus notialis	0.10	8	0.59	
Saurida brasiliensis	0.08	52	0.47	
Liocarcinus corrugatus	0.06	6	0.35	
Scyllarides herklotsii	0.04	12	0.23	
Grammoplites gruveli	0.02	2	0.12	
Serranus accraensis	0.02	2 2	0.12	
Pontinus accraensis	0.02	2	0.12	
Hemicaranx bicolor juv.	0.02	2	0.12	
Sardinella maderensis	0.02	2	0.12	
Total	17.04		100.03	

DR. FI			MSEN		P	ROJEC'	r:IG	P	ROJEC1	STAT	: NOI:	608
DATE:	3/ 6/	04		GE/	R TYP	E: BT	No:15	POS	ITION:	Lat	N	356
		art		durat						Long	E	725
TIME	:14:0	11:46	14:31:35	30	(min)	Pury	ose co	de:	3			
LOG	:9637	.41	9638.96	1.54		Area	code	:	5			
FDEPTH	1:	90	89			Gear	Cond.c	ode:				
BDEPTH	1:	90	89			Val:	dity co	ode;				
	Towl	ng d	ir: 270¢	Wire	out:	205 m	Speed	: 30	kn*10	FF		

Total catch:

SPECIES	CATCH	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Ariomma bondi	33.80	800	28.78	
Lepidotrigla cadmani	19.80	560	16.86	
Sepia officinalis hierredda	14.44	244	12.30	
Citharus linguatula	8.12	620	6.91	
Squatina oculata	4.56	4	3.88	
Sphoeroides pachgaster	3.72	124	3.17	
Dentex angolensis	3.52	44	3.00	
Raja miraletus	3.40	16	2.90	
Dentex congoensis	2.36	52	2.01	
Lepidotrigla carolae	2.36	120	2.01	
Chilomycterus spinosus mauret.	1.92	12	1.63	
Illex coindetii	1.88	96	1.60	
Uranoscopus albesca	1.80	44	1.53	
Sphyraena guachancho	1.76	4	1.50	
Alloteuthis africana	1.60	472	1.36	
Trichiurus lepturus	1.52	24	1.29	
Decapterus punctatus	1.36	30	1.16	
Saurida brasiliensis	1.28	320	1.09	
Serranus scriba	1.24	44	1.06	
Sardinella aurita	1.04	8	0.89	
Pontinus accraensis	1.04	40	0.89	
Sardinella maderensis	0.84	32	0.72	
Brotula barbata	0.76	16	0.65	
Fistularia petimba	0.76	8	0.65	
Priacanthus arenatus	0.52	4	0.44	
Pentheroscion mbizi	0.52	8	0.44	
Pterothrissus belloci	0.52	4	0.44	
VENERIDAE	0.36	24	0.31	
Parapenaeus longirostris	0.32	72	0.27	
Syacium micrurum	0.20	36	0.17	
Scyllarides herklotsii	0.04	4	0.03	
Blennius normani	0.04	4	0.03	
Bathygobius paganellus	0.04	12	0.03	
Total	117.44		100.00	

111.52

```
PROJECT:IG PROJECT STATION: 609
GEAR TYPE: BT No:15 POSITION:Lat N 352
hration Long E 725
                Total catch:
  Sorted: Kg
                               55.76 CATCH/HOUR:
```

SPECIES	CATCH	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Arionma bondi	69.30	3444	62.14	
Pentheroscion mbizi	7.98	84	7.16	
Priacanthus arenatus	6.36	108	5.70	
Illex coindetii	5.98	400	5.36	
Dentex angolensis	4.16	46	3.73	2788
Squatina oculata	3.24	2	2.91	
Citharus linguatula	2.40	164	2.15	
Brotula barbata	2.24	10	2.01	
Octopus vulgaris	1.18	6	1.06	
Todaropsis eblanae	1.18	40	1.06	
Dentex congoensis	1.14	14	1.02	2789
Raja miraletus	1.08	4	0.97	
Sepia officinalis hierredda	0.94	20	0.84	
Lepidotrigla cadmani	0.94	24	0.84	
Trichiurus lepturus	0.74	8	0.66	
Saurida brasiliensis	0.60	158	0.54	
Pterothrissus belloci	0.44	4	0.39	
Zeus faber	0.36	4	0.32	
Lepidotrigla carolae	0.22	10	0.20	
Uranoscopus albesca	0.18	6	0.16	
Pontinus accraensis	0.18	8	0.16	
Fistularia petimba	0.16	2	0.14	
Sphoeroides pachgaster	0.12	2	0.11	
Decapterus punctatus	0.10	2	0.09	
Cepola pauciradiatus	0.08	6	0.07	
Bembrops heterurus	0.08	2	0.07	
Bathygobius paganellus	0.06	4	0.05	
Serranus africana	0.04	2	0.04	
Syacium micrurum	0.02	4	0.02	
Parapenaeus longirostris	0.02	8	0.02	
Total	111.52		99.99	

DR. F	RID.	JOF I	NAN	SEN			1	PROJ	ECT	: IG	P	ROJEC:	STAT	ION:	610
DATE:	24/	6/04			3	GEAR	TY	PE:	BT :	No:15	POS	ITION	Lat	N	352
		stari	t	stop	dur	atio	n						Long	E	737
TIME	:06	5:17:4	14	06:28:53	1	1 (min	P	urp	ose coo	de:	3			
LOG	:9"	729.7	7	9730.29	C .	52		A	rea	code	1	5			
FDEPT	H:	135	5	135				G	ear	Cond.co	ode:				
BDEPT	H:	135	5	135				V	ali	dity co	ode:				
	To	owing	di	r: 90ø	Wi	re o	ut:	360	m	Speed	30	kn*10)		
Sor	t,ed:	0 1	Kq	To	tal	cat	ch:		56	.98	CAT	CH/HO	JR:	310	.80

SPECIES	CATCH	I/HOUR	% OF	TOT. C	SAMP
	weight	numbers			
Ariomma bondi	90.00	4124		28.96	
Pentheroscion mbizi	37.58	425		12,09	
Pontinus accraensis	23.24	551		7.48	
Brotula barbata	15.16	76		4.88	
Priacanthus arenatus	15.00	229		4.83	
Pterothrissus belloci	14.51	164		4.67	
Sepia officinalis hierredda	12.22	267		3.93	
Saurida brasiliensis	12.00	2624		3.86	
Bembrops greyi	11.13	709		3.58	
Uranoscopus albesca	11.07	164		3.56	
Dentex congoensis	10.64	153		3.42	
Dentex angolensis	10.42	98		3.35	
Bembrops heterurus	8,18	513		2.63	
Citharus linguatula	7.47	518		2.40	
Lepidotrigla cadmani	6.11	131		1.97	
Octopus vulgaris	4.47	22		1.44	
Todaropsis eblanae	4.31	196		1.39	
Pythonichthys microphthalmus	3.33	33		1.07	
Lepidotrigla carolae	2.45	109		0.79	
HOLUTHUROIDEA	2.40	420		0.77	
Illex coindetii	2.24	38		0.72	
Bathygobius paganellus	2.13	316		0.69	
Sphoeroides pachgaster	1.53	33		0.49	
POLYCHAETA	0.60	33		0.19	
Serranus accraensis	0.60	38		0.19	
Starfish	0.55	33		0.18	
Zeus faber	0.55	5		0.18	
Parapenaeus longirostris	0.44	142		0.14	
Trichiurus lepturus	0.27	5		0.09	
Physiculus huloti	0.22	11		0.07	
Microchirus frechkopi	0.22	5		0.07	
Blennius normani	0.16	5		0.05	
Sea urchins (waek spines)	0.11	11		0.04	
Total	311.31		- E	100 17	

	OF NANSEN			CT:IG		T STATI	
DATE: 24/ 6	33 V 70 7 Vivos		AR TYPE: B	T No:15 E	MOITIRO		N 411
	tart st	op durat				Long	E 731
	44:46 10:			rpose code			
FDEPTH:		9.72 1.56		ea code	: 5		
	34	33		arCond.cod			
BDEPTH:	34	33		lidity cod			
Tot	ing dir:	100¢ Wire	out: 120	m Speed:	30 kn*1)	
Sorted:	Kg	Total c	atch:	33.21	CATCH/HO	JR:	68.71
SPECIES			c	ATCH/HOUR	& OF	TOT. C	SAMP
			weig				Shire
Scomberomorus	tritor				47	25.15	2790
Sphyraena guac	hancho				82	15.51	2791
Brachydeuterus	auritus				24	11.35	2796
Galeoides deca	dactylus		7	.32	79	10.65	2793
Portunus valid	lus		4	.47	25	6.51	
Selene dorsali	S		3	.93	48	5.72	
Chloroscombrus	chrysuru	3	3	.12	52	4.54	2794
Ilisha african			3	.00 2	30	4.37	2795
Sardinella mad			2	.07	79	3.01	2792
Trichiurus lep	turus		1	.61	17	2.34	2797
Caranx hippos			1	.61	8	2.34	
Stromateus fia			1	.16	4	1.69	
JELLYFI				.03	6	1.50	
Raja miraletus			0	.66	2	0.96	
Caranx crysos				.64	2	0.93	
Calappa rubrog				.54	2	0.79	
Pseudupeneus p				.29	2	0.42	
Sepia officina	lis hierre	edda		. 29	2	0.42	
Epinephelus ae				. 29	2	0.42	
Pteroscion pel					10	0.33	
Sepiella ornat	a				24	0.28	
PENAEIDAE	120				54	0.20	
Cynoglossus mo				.06	4	0.09	
Penaeus notial				.06	4	0.09	
Chloroscombrus		9			87	0.06	2798
Uranoscopus al				.04	2	0.06	
Alectis alexan				.04	2	0.06	
Bembrops greyi				.04	4	0.06	
Scyllarides he				.02	2	0.03	
Lepidotrigla c				.02	2	0.03	
Decapterus pun	ctatus		0	.02	6	0.03	
				70			

68.67

DR. FRIDTJOF NANSEN	PROJECT: IG	DD	OJECT STATI	DN 610
	PE: BT No:1			V 413
start stop duration	PE: BI NO:	13 POST		
TIME :12:07:26 12:37:12 30 (min) Purpose		Long 1	E 739
LOG :9773.36 9774.98 1.60	Area co		5	
FDEPTH: 23 23	GearCond		ס	
BDEPTH: 23 23				
Towing dir: 90¢ Wire out:	Validity			
towing dir: 90\$ Wire out:	m Spe	ed:	kn*10	
Sorted: Kg Total catch:	49,08	CATC	H/HOUR:	98.16
SPECIES	CATCH/F		9 OF TOT. C	SAMP
		umbers		
Galeoides decadactylus	37.10	390	37.80	2810
Scomberomorus tritor	14.10	70	14.36	2811
Brachydeuterus auritus	7.34	176	7.48	2799
Selene dorsalis	5.48	154	5.58	2801
Caranx crysos	4.64	20	4.73	2809
Caranx senegallus	4.64	20	4.73	
Trichiurus lepturus	3.60	40	3.67	2808
Caranx hippos	3.02	20	3.08	2807
Chloroscombrus chrysurus	2.58	54	2.63	2802
Sphyraena guachancho	2.42	20	2.47	2803
Alectis alexandrinus	2.10	34	2.14	2800
Chaetodipterus goreensis	2.06	14	2.10	
Sepia officinalis hierredda	1.72	2	1.75	
Pomadasys jubelini	1.62	22	1.65	2804
Drepane africana	1.08	16	1.10	
Lagocephalus laevigatus	0.74	6	0.75	
Ilisha africana	0.70	24	0.71	2806
Portunus validus	0.66	6	0.67	
Selar crumenophthalmus	0.64	4	0.65	
Sardinella maderensis	0.56	24	0.57	2805
Pteroscion peli	0.52	6	0.53	
Stromateus fiatola	0.30	2	0.31	
Penaeus monodon	0.26	2	0.26	
Pseudotolithus senegalensis	0.22	2	0.22	
Trachinocephalus myops	0.06	2	0.06	
Total	98.16		100.00	

DR. FF	rdis	JOF N.	ANSEN	1			PRO	JEC	T:IG	P	ROJECT	STAT	ION:	613
DATE: 2	41	6/04			GI	EAR	TYPE:	BT	No:15	POS	ITION:	Lat	N	406
		start	st	op	dura	tion	ı				1	ong	E	757
TIME	:14	:00:5	7 15:	00:4.	3 28	(m	ini	Pur	pose c	ode:	3			
LOG	:97	95.22	979	6.64	1.4	1		Are	a code	:	5			
FDEPTH	1:	47		46				Gea	rCond.	code:				
BDEPTH	4:	47		46				Val	idity	code:				
	To	wing	dir:	275ø	Wir	e ou	t: 17	5 m	Spee	d: 30	kn*10			
Sort	ed:	62 1	Kg	T	otal (rato	h:	7	8.29	CAT	сн/нои	R:	167	.76

SPECIES	CATCH/HOUR		% OF	TOT. C	SAMP
	weight	numbers			
Brachydeuterus auritus	72.00	14621		42.92	
Alectis alexandrinus	57.86	17		34.49	2812
Parapenaeus longirostris	8.46	1286		5.04	2813
Pentheroscion mbizi	5.59	111		3.33	
Saurida brasiliensis	3.99	1356		2.38	
Cymbium cymbium	3.56	2		2.12	
Grammoplites gruveli	2.61	135		1.56	
Citharus linguatula	1.71	105		1.02	
Trichiurus lepturus	1.52	66		0.91	
Sepia officinalis hierredda	1.33	2		0.79	
Portunus validus	1.33	6		0.79	
Epinephelus aeneus	1.22	4		0.73	
Sphyraena afra	1.03	2		0.61	
Priacanthus arenatus	0.96	28		0.57	
Alloteuthis africana	0.90	225		0.54	
Sepia juveniles	0.75	58		0.45	
Raja miraletus	0.66	6		0.39	
Sphyraena guachancho	0.58	58		0.35	
Illex coindetii	0.36	2		0.21	
Serranus accraensis	0.26	26		0.15	
Selene dorsalis, juveniles	0.26	73		0.15	
Antennarius sp.	0.13	15		0.08	
Penaeus notialis	0.13	4		0.08	
Sardinella maderensis	0.11	6		0.07	
Sicyonia galeata	0.11	28		0.07	
Scyllarides herklotsii	0.11	13		0.07	
Uranoscopus albesca	0.06	6		0.04	
Bathygobius paganellus	0.04	6		0.02	
Sphoeroides marmoratus	0.54	2		0.02	
Liocarcinus corrugatus	0.04	6		0.02	
Lophiodes kempi	0.04	2		0.02	
Total	167.75		-	99.99	

				TO. DI WOLLD	POSITION: Lat	N	401
	start	stop	duration		Long	Ε	759
TIME :1	6:49:59	17:19:43	30 (min) Purpose co	de: 3		
LOG :9	806.50	9808.05	1.54	Area code	; 5		
FDEPTH:	66	64		GearCond.c	ode;		
BDEPTH:	66	64		Validity c	ode:		
T	owing d	ir: 270¢	Wire out:	216 m Speed	: 30 kn*10		

SPECIES	CATCH	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	98.00	2012	53.76	
Rachycentron canadum	38.60	2	21.18	
Arionma bondi	10.52	212	5.77	
Priacanthus arenatus	9.68	1084	5.31	
Sepia officinalis hierredda	5.80	24	3.18	
Squatina oculata	2.70	2	1.48	
Epinephelus aeneus	2.34	10	1.28	
Lepidotrigla cadmani	2.24	68	1.23	
Lagocephalus laevigatus	1.72	28	0.94	
Fistularia petimba	1.50	22	0.82	
Pseudupeneus prayensis	1.48	36	0.81	
Sphyraena guachancho	0.96	4	0.53	
Parapenaeus longirostris	0.72	76	0.39	
Illex coindetii	0.56	8	0.31	
Svacium micrurum	0.52	112	0.29	
Chilomycterus spinosus mauret.	0.50	4	0.27	
Grammoplites gruveli	0.48	20	0.26	
Sardinella maderensis	0.40	32	0,22	
Zeus faber	0.32	8	0.18	
Pagrus caeruleostictus	0.32	4	0.18	
Brotula barbata	0.28	8	0.15	
Dentex congoensis	0.26	6	0.14	
Citharus linguatula	0.24	20	0.13	
Octopus vulgaris	0.20	4	0.11	
Sepia juveniles	0.20	12	0.11	
Saurida brasiliensis	0.20	52	0.11	
Scyllarides herklotsii	0.16	20	0.09	
Cynoglossus canariensis	0.16	4	0.09	
Alloteuthis africana	0.16	44	0.09	
Raja miraletus	0.16	16	0.09	
Dentex angolensis	0.16	2	0.09	
Antennarius sp.	0.14	6	0.08	
Blennius normani	0.12	8	0.07	
Lepidotrigla carolae	0.12	12	0.07	
Pontinus accraensis	0.12	16	0.07	
Selar crumenophthalmus	0.08	4	0.04	
Liocarcinus corrugatus	0.08	8	0.04	
Sphoeroides marmoratus	0.04	8	0.02	
Trachinus lineolatus	0.04	4	0.02	
Total	182.28		100.00	

DR. F	RIDTJOF	NAI	ISEN		I	ROJE	T:IG	P	ROJECT STAT	: MOI:	615
DATE:	25/ 6/0	4		GEA	AR TY	E: B	r No:15	POS	ITION: Lat	N	356
	sta			durat	ion				Long	E	811
TIME	:07:02	:06	07:32:05	30	(min)	Pu	rpose co	de:	3		
LOG	19909.	55	9911.07	1.50		Ar	ea code	:	5		
FDEPT	H:	80	85			Gei	arCond.c	ode:			
BDEPT	H:	80	85			Va	lidity c	ode:			
	Towin	g d	ir: 90ø	Wire	out:	230 1	n Speed	: 30	kn*10		
Sor	ted:	Kç	To	tal ca	atch:		19.65	CAT	CH/HOUR:	99	. 30

SPECIES	CATC	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Ariomma bondi	36.10	1198	36.35	2818
Dentex congoensis	29.30	604	29.51	2814
Dentex angolensis	12.82	124	12.91	2815
Priacanthus arenatus	6.18	100	6.22	
Decapterus punctatus	3.80	106	3.83	2819
Boops boops	1.54	32	1.55	2817
Fistularia petimba	1.50	16	1.51	
Illex coindetii	1.34	86	1.35	
Zeus faber	1.14	8	1.15	
Raja miraletus	1.02	16	1.03	
Chilomycterus spinosus mauret.	0.86	2	0.87	
Pagellus bellottii	0.78	6	0.79	
Lepidotrigla cadmani	0.70	16	0.70	
Sardinella maderensis	0.48	16	0.48	2816
Citharus linguatula	0.28	26	0.28	
Brotula barbata	0.26	4	0.26	
Erythrocles monodi	0.24	4	0.24	
Chaetodon marcellae	0.20	6	0.20	
Syacium micrurum	0.16	28	0.16	
Sphoeroides marmoratus	0.14	4	0.14	
Lophiodes kempi	0.14	2	0.14	
Pseudupeneus prayensis	0.12	2	0.12	
Lepidotrigla carolae	0.10	4	0.10	
Octopus defilippi	0.10	2	0.10	
Total	99.30		99.99	

DR. F	RIDTJ	OF NA	NSEN			1	PROJEC	T:IG	F	ROJECT	STAT	TION:	616
DATE:	25/ 6	/04			G	EAR TY	E: BT	No:1	5 POS	ITION:	Lat	N	408
	s	tart	st	op q	iura	tion					Long	E	812
TIME	:09:	20:45	09:	50:02	29	(min	Pur	pose	code:	3			
LOG	:992	4.97	992	6.42	1.4	5	Are	a cod	e :	5			
FDEPT.	H:	39		43			Gea	rCond	.code:				
BDEPT	H:	39		43			Val	idity	code:				
	Tow	ing d	ir:	180ø	Wir	e out:	120 m	Spe	ed: 30	kn*10)		
Sor	ted:	K	g	To	tal	catch:	4	4.07	CAT	CH/HOL	JR:	91	.18

SPECIES	CATCH	1/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	40.97	3894	44.93	
Sphyraena guachancho	11.73	130	12.86	
Trichiurus lepturus	9.50	1214	10.42	
JELLYFISH	9.39	143	10.30	
Pseudotolithus epipercus	5.42	87	5.94	
Sepiella ornata	1.99	966	2.18	
Selene dorsalis, juveniles	1.47	509	1.61	
Selene dorsalis	1.45	33	1.59	
Sardinella maderensis	1.41	93	1.55	
Pseudotolithus senegalensis	1.14	4	1.25	
Citharus linguatula	0.87	56	0.95	
Decapterus punctatus	0.83	17	0.91	
Antennarius pardalis	0.66	8	0.72	
Stromateus fiatola	0.60	2	0.66	
Portunus validus	0.60	2	0.66	
Penaeus notialis	0.41	23	0.45	
Pteroscion peli	0.41	54	0.45	
Erythrocles monodí	0.33	6	0.36	
Grammoplites gruveli	0.29	17	0.32	
Saurida brasiliensis	0.27	91	0.30	
Raja miraletus	0.23	4	0.25	
Parapenaeus longirostris	0.21	72	0.23	
Octopus vulgaris	0.21	2	0.23	
Pagrus caeruleostictus	0.17	2	0.19	
Lophiodes kempi	0.14	4	0.15	
Ilisha africana	0.14	21	0.15	
Dicologoglossa cuneata	0.10	2	0.11	
XENOCONGRIDAE	0.08	4	0.09	
Cymbium sp.	0.06	27	0.07	
Sicyonia galeata	0.04	12	0.04	
CRABS	0.02	6	0.02	
Scyllarides herklotsii	0.02	2	0.02	
Lagocephalus laevigatus	0.02	4	0.02	
Total	91.18		99.98	

DR. FRIDTJOF NAMSEN DATE: 25/ 6/04 Start Stop duratic TIME: 12:23:34 12:53:14 30 LOG: 9944.72 9946.29 3.22 FDEPTH: 59 59 BDEPTH: 59 59 Towing dir: 2700 Wire of	(min) Purpose Area cod GearCond Validity	code: 3 e : 7 .code: code:	Long E	404	DR. FRIDTJOF NANSEN DATE:25/ 6/04 start stop TIME :16:42:20 17:12 LOG :9971.49 9973. FDEPTH: 82 BDEPTH: 82 Towing dir: 30
Sorted: 32 Kg Total cat	ch: 61.70	CATCH	/HGUR: 12.	3.40	Sorted: Kg
Brachydeuterus auritus Juv. Lepidotrigla cadmani Sepia juveniles Illex coindetil Lagocephalus laevigatus Trichiurus lepturus Pseudupeneus prayensis Fistularia petimba Citharus linguatula Parapenaeus longirostris Serranus accraensis Calappa rubrogutata Syacium micrurum Sphyraena guachancho Priacanthus arenatus Saurida brasiliensis Starfish Chilomyterus spinosus mauret. Sea urchins (waek spines) Penaeus notialis Decapterus punctatus Cynoglossus cadenati Grammoplites gruveli Pagellus bellottii Lophiodes kempi Octopus defilippi Antennarius sp. Pagrus caeruleostictus Selar czumenophthalmus Raja miraletus Microchirus frechkopi Bathygobius paganellus Cymbum sp. Cardita ajar Dentex maroccanus Pontinus accraensis	99.20 3.50 1.56 1.42 1.28 1.20 1.14 1.08 1.04 1.00 0.96 0.76 0.68 0.64 0.60 0.58 0.44 0.40 0.32 0.26 0.24 0.20 0.20 0.20 0.12 0.12 0.12 0.10 0.08 0.08	umbers 14512 80 44 20 20 20 21 32 64 156 44 6 6 128 8 8 4 108 8 8 4 12 4 36 100 8 6 12	OF TOT. C 80.39 2.92 1.26 1.26 1.26 1.15 1.04 0.97 0.92 0.88 0.84 0.78 0.62 0.55 0.52 0.49 0.47 0.36 0.36 0.36 0.32 0.26 0.26 0.21 0.19 0.16 0.16 0.16 0.16 0.16 0.11 0.10 0.08 0.08	SAMP	Aricuma bondi Pythonichthys microphthal Decapterus punctatus Squatina oculata Priacanthus arenatus Dentex congoensis Raja miraletus Illex coindetii Lepidotrigla cadmani Sepia officinalis hierred Chilomycterus spinosus mar Lophiodes kempi Fistularia petimba Citharus linguatula Brotula barbata Zeus faber Selar crumenophthalmus Syacium micrurum Octopus vulgaris Calappa pelii Uranoscopus albesca Pagrus caeruleostictus Boops boops Saurida brasiliensis Blennius normani Total DR. FRIDTJOF NANSEN DATE:26/6/04 start stop TIME :05:43:01 06:12. LOG :76:70 78.:
C R A B S Liccarcinus corrugatus Dactylopterus volitans Sicyonia galeata Ariomma bondi	0.04 0.04 0.04 0.04 0.04	4 8 4 4 8	0.03 0.03 0.03 0.03 0.03		FDEPTH: 73 6 BDEPTH: 73 7 Towing dir: 26 Sorted: Kg
Total	123,40		99.97		SPECIES
DR. FRIDTJOF NANSEN DATE:25/ 6/04 GEAR start stop duratic TIME:14:48:02:15:19:37 32 (LOG:9950.64 9962.23 1.59 FDEPTH: 81 83 BDEPTH: 81 83 Towing dir: 270\$ Wire of Sorted: 29 Kg Total cat SPECIES Boops boops Ariouma bondi Dentex congeensis Lepidotrigla cadmani Dentex congeensis Sepia officinalis hierreda Saurida brasiliensis Decapterus punctatus Squatina oculata Raja miraletus Pagellus bellottii Pontinus accraemsis Uranoscopus albesca Todaropsis seblanae	min) Purpose of Area code GearCond Validity ut: 245 m Specch: 145.90	code: 3 e : 7 code: code: code: ed: 3 kr	Long E 10 10 10 10 10 10 10 10 10 1	618 355 830 .56 SAMP 2820 2822 2823	Brachydeuterus auritus Ju Squatina oculata Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mat Uranoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredd Pentheroscion mbizi Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Sphoeroides pachgaster Peroscion peli Sphoeroides marmoratus Alloteuthis africana Sicyonia galeata Cepola pauciradiatus
Todaropsis eblanse Pentheroscion mbiri Lepidotrigla carolae Brotula barbata Priacanthus arenatus Epinephelus aeneus Citharus linguatula Rhizoprionodon acutus Lophicdes kempi Chilomycterus spinosus mauret Blennius normani Brachydeuterus auritus Pseudupeneus prayensis B I V A L V E S Bathygobius paganellus Trichiurus lepturus Grammoplites gruveli Trachinocephalus myops Fistularia petimba Syacium micrurum Serranus africana Sphoeroides pachgaster Scyllarides herklotsii Total	1.58 1.46 1.24 1.13 1.09 1.01 0.92 0.79 0.79 0.68 0.45 0.34 0.34 0.33 0.23 0.23 0.23 0.11 0.11 0.11 0.11	23 11 90 4 101 2 68 2 2 31 11 45 90 11 11 11 11 11 11 11	0.58 0.53 0.45 0.41 0.41 0.40 0.37 0.34 0.29 0.29 0.25 0.16 0.12 0.12 0.08 0.08 0.08 0.08 0.08 0.04 0.04 0.04		DR. FRIDTJOF NANSEN DATE:26/6/04 start stop TIME:08:12:39 08:42: LOG:91.85 93.3 FDEPTH: 103 10 BDEPTH: 103 10 Towing dir: 340 Sorted: 54 Kg SPECIES Arionma bondi Decapterus punctatus Dentex congoensis Epinephelus aeneus Erythrocles monodi Antigonia capros Squatina oculata Hexanchus griseus Sopia officinalis hierredd Illex coindetii Sphoeroides pachgaster Astropecten sp.

DR. FRIDTJOF NANSEN DATE:25/ 6/04 GEAR TY. start stop duration TIME :16:42:20 17:12:08 30 (min	PROJECT: IG	PRO	JECT STATI	ON: 619
start stop duration	PE: BI NO:15	PUSII	Long 1	E 834
Start stop duration TIME :16:42:20 17:12:08 30 (min LOG :9971.49 9973.15 1.64 FDEPTH: 82 84 BDEPTH: 82 84) Purpose c Area code	ode: 3		
FDEPTH: 82 84 BDEPTH: 82 84	GearCond.	code:		
BDEPTH: 82 84 Towing dir: 307¢ Wire out:	275 m Spee	d: 30 k	n*10	
Sorted: Kg Total catch:				47.24
SPECIES	CATCH/HO weight nu	UR %	OF TOT. C	SAMP
Aricmma bondi	12.24	952	25.91 18.08	
Pythonichthys microphthalmus Decapterus punctatus	7.40	130 366	18.08 15.66	2824
Squatina oculata Priacanthus arenatus	3.70	40	7.83 5.04	
Dentex congoensis Raja miraletus	1.90	34	4.02	
Illex coindetii	1.82	12 48	3.85 3.43	
Lepidotrigla cadmani Sepia officinalis hierredda	1.06	24	2.24	
Sepia officinalis hierredda Chilomycterus spinosus mauret. Lophiodes kempi	0.80	4	1.69	
Fistularia petimba	0.68	10	1.57	
Citharus linguatula Brotula barbata	0.60	56	1.27	
Zeus faber Selar crumenophthalmus	0.36	2	0.76	
Syacium micrurum	0.30	5 6	0.64	
Octopus vulgaris Calappa pelii	0.28	2	0.59	
Uranoscopus albesca Pagrus caeruleostictus	0.26	6	0.55	
Boops boops	0.24	6	0.51	
Saurida brasiliensis Blennius normani	0.16	24	0.34	
Total	weight nu 12.24 8.54 7.40 3.70 2.38 1.90 1.82 1.62 1.06 0.82 0.80 0.74 0.68 0.60 0.42 0.36 0.30 0.28 0.28 0.26 0.24 0.22 0.16 0.12	-	100.00	
	47.24		100.00	
DR. FRIDTJOF NANSEN	ROJECT: IG	PRO	JECT STATIO	N: 620
DR. FRIDTJOF NANSEN DATE: 26/ 6/04 Start stop duration TIME :05:43:01 06:12:45 30 (min)	E: BT No:15	POSIT	ION:Lat N Long E	346
start stop duration TIME :05:43:01 06:12:45 30 (min) LOG : 76.70 78.17 1.45 FDEPTH: 73 81	Purpose co	ode: 3	20119	
FDEPTH: 73 81 BDEPTH: 73 81	GearCond.	ode:		
BDEPTH: 73 81 Towing dir: 267¢ Wire out:	Validity of	code;	n*10	
Sorted: Kg Total catch:	27.87	CATCH	HOUR:	55.74
			100010000	5.534.54
SPECIES	CATCH/HOU	JR %	OF TOT. C	SAMP
Brachydeuterus auritus Juv.	weight har	nbers		
	16.34	644	29.31	
Squatina oculata Ariomma bondi	weight nur 16.34 8.74 8.26	644 2 142	15.68	
Ariomma bondi Priacanthus arenatus	8.26 7.50	142 306	15.68 14.82 13.46	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii	8.26 7.50 4.78 3.10	142 306 62 124	15.68 14.82 13.46 8.58 5.56	
Ariouma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus	8.26 7.50 4.78 3.10	142 306 62 124	15.68 14.82 13.46 8.58 5.56	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii	8.26 7.50 4.78 3.10	142 306 62 124	15.68 14.82 13.46 8.58 5.56	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uzanoscopus albesca	8.26 7.50 4.78 3.10	142 306 62 124	15.68 14.82 13.46 8.58 5.56	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret.	8.26 7.50 4.78 3.10	142 306 62 124	15.68 14.82 13.46 8.58 5.56	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uranoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrida cadmani	8.26 7.50 4.78 3.10	142 306 62 124	15.68 14.82 13.46 8.58 5.56	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uxanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi	8.26 7.50 4.78 3.10	142 306 62 124	15.68 14.82 13.46 8.58 5.56	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uzanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi Sardinella maderensis Saurida brasiliensis	8.26 7.50 4.78 3.10	142 306 62 124	15.68 14.82 13.46 8.58 5.56	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uzanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi Saurida brasiliensis Lophiodes kempi	8.26 7.50 4.78 3.10 1.34 0.96 0.68 0.60 0.56 0.42 0.32 0.32 0.30 0.26 0.18 0.16	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 36 2	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 0.75 0.57 0.54 0.47 0.32 0.29	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uxanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus Iinguatula	8.26 7.50 4.78 3.10 1.34 0.96 0.60 0.60 0.56 0.42 0.32 0.32 0.26 0.18 0.16	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 36 2 6	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.00 0.75 0.57 0.54 0.47 0.32 0.29 0.25 0.18	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uxanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines)	8.26 7.50 4.78 3.10 1.34 0.96 0.60 0.60 0.56 0.42 0.32 0.32 0.26 0.18 0.16	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 4 2 6 4 12 13 14 10 10 10 10 10 10 10 10 10 10 10 10 10	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.00 0.75 0.57 0.57 0.47 0.32 0.29 0.25 0.14 0.11	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uzanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbiri Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Spheeroides pachgaster	8.26 7.50 4.78 3.10 1.34 0.96 0.60 0.60 0.56 0.42 0.32 0.32 0.26 0.18 0.16	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 36 2 6 4 12 18 2	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.08 1.00 0.75 0.57 0.47 0.32 0.29 0.25 0.18 0.14 0.11	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uranoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbiri Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Sphoeroides pachgaster Pteroscion peli Sphoeroides marmoratus	8.26 7.50 4.78 3.10 1.34 0.96 0.68 0.60 0.56 0.42 0.32 0.30 0.18 0.16 0.14 0.10 0.08 0.06 0.06 0.06 0.06 0.04 0.04 0.04	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 36 2 6 4 12 18 2	15.68 14.82 13.45 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.00 2.75 0.57 0.54 0.47 0.32 0.29 0.25 0.18 0.11 0.11 0.11 0.17 0.07	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uxanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Spheeroides pachgaster Peteroscion peli Sphoeroides marmoratus Alloteuthis africana	8.26 7.50 4.78 3.10 1.34 0.96 0.68 0.60 0.56 0.42 0.32 0.30 0.18 0.16 0.14 0.10 0.08 0.06 0.06 0.06 0.00 0.06 0.04 0.04 0.04	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 36 2 6 4 12 18 2 2 6 4 12 6 4 4 2 6 6 4 6 6 6 6 6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.09 0.75 0.57 0.54 0.47 0.32 0.29 0.25 0.14 0.11 0.07	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uxanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Spheeroides pachgaster Peteroscion peli Sphoeroides marmoratus Alloteuthis africana	8.26 7.50 4.78 3.10 1.34 0.96 0.68 0.60 0.56 0.32 0.32 0.32 0.32 0.16 0.18 0.14 0.14 0.08 0.06 0.08	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 36 2 6 4 12 18 2 2 6	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.00 0.75 0.57 0.57 0.47 0.32 0.29 0.25 0.14 0.11 0.11 0.07 0.07	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uzanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi Sardinella maderensis Savinda brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Sphoeroides pachgaster Pteroscion peli Sphoeroides marmoratus Alloteuthis africana	8.26 7.50 4.78 3.10 1.34 0.96 0.68 0.60 0.56 0.42 0.32 0.30 0.18 0.16 0.14 0.10 0.08 0.06 0.06 0.06 0.00 0.06 0.04 0.04 0.04	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 36 2 6 4 12 18 2 2 6 4 12 6 4 4 2 6 6 4 6 6 6 6 6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8	15.68 14.82 13.45 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.00 0.75 0.57 0.54 0.47 0.32 0.29 0.25 0.18 0.11 0.11 0.11 0.07 0.07 0.07 0.04 0.04	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uranoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbiri Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar citharus linguatula Syacium micrurum Sea urchins (waek spines) Sphoeroides pachgaster Pteroscion peli Sphoeroides marmoratus Alloteuthis africana Sicyonia galeata Cepola pauciradiatus Total	8 .26 7 .50 4 .78 3 .10 1 .34 0 .96 0 .68 0 .60 0 .56 0 .42 0 .32 0 .32 0 .26 0 .16 0 .16 0 .10 0 .08 0 .06 0 .06 0 .06 0 .00 0 0 .00 0 0 0 0	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 6 4 11 18 2 2 6 4 11 18 2 2 6 4 12 18 2 18 2 18 2 18 2 18 2 18 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.00 0.75 0.57 0.54 0.47 0.32 0.29 0.25 0.18 0.11 0.11 0.11 0.17 0.07 0.07 0.04 0.04 0.04	
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uzanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbizi Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Sphoeroides pachgaster Peroscion peli Sphoeroides marmoratus Alloteuthis africana Sicyonia galeata Cepola pauciradiatus Total DR. FRIDTJOF NANSEN P	8 .26 7 .50 4 .78 3 .10 1 .34 0 .96 0 .68 0 .60 0 .56 0 .42 0 .32 0 .32 0 .26 0 .16 0 .16 0 .10 0 .08 0 .06 0 .06 0 .06 0 .00 0 0 .00 0 0 0 0	142 306 62 124 10 10 12 2 10 24 6 8 4 2 6 6 4 11 18 2 2 6 4 11 18 2 2 6 4 12 18 2 18 2 18 2 18 2 18 2 18 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.00 0.75 0.57 0.54 0.47 0.47 0.32 0.29 0.25 0.18 0.11 0.11 0.11 0.07 0.07 0.07 0.04 0.04 0.04 99.97	342
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uranoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbiri Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Sphoeroides pachgaster Pteroscion peli Sphoeroides marmoratus Alloteuthis africana Sicyonia galeata Cepola pauciradiatus Total DR. FRIDTJOF NANSEN DATE:26/6/04 SEAR TYP Start stop duration TIME :08:12:39 08:42:05 29 (mini) TIME :08:12:39 08:42:05 29 (mini)	8.26 7.50 4.78 3.10 1.34 0.96 0.68 0.60 0.56 0.32 0.32 0.30 0.26 0.18 0.16 0.14 0.08 0.06 0.04 0.04 0.04 0.04 0.04 0.04 0.04	142 306 62 124 10 10 10 12 2 10 24 6 8 4 4 2 6 6 4 12 18 2 2 2 6 6 4 12 2 6 6 4 12 2 6 6 4 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.00 0.75 0.57 0.54 0.47 0.32 0.29 0.25 0.18 0.11 0.11 0.11 0.17 0.07 0.07 0.04 0.04 0.04	342
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Ariomma bondi Priacanthous arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uranoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbiri Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Sphoeroides pachgaster Pteroscion peli Sphoeroides marmoratus Alloteuthis africana Sicyonia galeata Cepola pauciradiatus Total DR. FRIDTJOF NANSEN DATE: 26/6/04 SEAR TYP STATE	8.26 7.50 4.78 3.10 1.34 0.96 0.60 0.60 0.56 0.42 0.32 0.30 0.26 0.18 0.16 0.14 0.02 0.02 0.06 0.06 0.06 0.04 0.04 0.02 0.02 0.02 55.72 ROJECT:IG E: BT No:15 Purpose code Gearcond.c. Validity code Gearcond.c. Validity code Gearcond.c. Validity code Gearcond.c. CATCH/HOU weight num 673.45 175.34 63.00 21.72 18.62 15.52 14.17 10.55 10.24 6.83 5.90	142 306 62 124 10 10 10 12 2 10 24 6 8 4 2 6 6 4 12 18 8 2 2 2 6 6 4 4 2 18 8 2 2 2 6 6 4 12 18 8 2 2 2 18 6 12 18 15 55 9 4 2 18 6 62 11 15 55 9 4 62 18 6 62 18 6 62 18 6 62 18 6 62 18 15 55 9	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.00 0.75 0.57 0.54 0.47 0.32 0.29 0.25 0.18 0.11 0.11 0.11 0.07 0.07 0.04 0.04 0.04 0.04 0.04 0.04	342 830 25.28
Ariomma bondi Priacanthus arenatus Dentex angolensis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uranoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbiri Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Sphoeroides pachgaster Pteroscion peli Sphoeroides marmoratus Alloteuthis africana Sicyonia galeata Cepola pauciradiatus Total DR. FRIDTJOF NANSEN DATE: 26/6/04 SEAR TYP STATE STATE STATE STATE STATE LOG: 91.85 93.36 1.51 FDEPTH: 103 101 HDEPTH: 103 101 Towing dir: 340e Wire out: SORTER: 54 Kg Total catch: SPECIES	8.26 7.50 4.78 3.10 1.34 0.96 0.60 0.60 0.56 0.42 0.32 0.30 0.26 0.18 0.16 0.14 0.02 0.02 0.06 0.06 0.06 0.04 0.04 0.02 0.02 0.02 55.72 ROJECT:IG E: BT No:15 Purpose code Gearcond.c. Validity code Gearcond.c. Validity code Gearcond.c. Validity code Gearcond.c. CATCH/HOU weight num 673.45 175.34 63.00 21.72 18.62 15.52 14.17 10.55 10.24 6.83 5.90	142 306 62 124 10 10 10 12 2 10 24 6 8 4 2 6 6 4 12 18 8 2 2 2 6 6 4 4 2 18 8 2 2 2 6 6 4 12 18 8 2 2 2 18 6 12 18 15 55 9 4 2 18 6 62 11 15 55 9 4 62 18 6 62 18 6 62 18 6 62 18 6 62 18 15 55 9	15.68 14.62 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.00 0.75 0.54 0.47 0.32 0.29 0.25 0.18 0.11 0.07 0.07 0.07 0.07 0.07 0.07 0.07	342 830 25.28
Ariomma bondi Priacanthous arenatus Dentex angolemsis Illex coindetii Raja miraletus Fistularia petimba Pagellus bellottii Chilomycterus spinosus mauret. Uzanoscopus albesca Decapterus punctatus Dentex congoensis Lepidotrigla cadmani Sepia officinalis hierredda Pentheroscion mbiri Sardinella maderensis Saurida brasiliensis Lophiodes kempi Cardita ajar Citharus linguatula Syacium micrurum Sea urchins (waek spines) Spheeroides pachgaster Pteroscion peli Spheeroides marmoratus Alloteuthis africana Sicyonia galeata Cepola pauciradiatus Total DR. FRIDTUOF NANSEN DATE:26/ 6/04 DEATE:28/ 6/04 DEATE:29 08:42:05 29 (min) LOG : 91.85 93.36 1.51 FDEPTH: 103 101 BDEPTH: 10	8.26 7.50 4.78 3.10 1.34 0.96 0.60 0.60 0.56 0.42 0.32 0.30 0.26 0.18 0.16 0.14 0.02 0.02 0.06 0.06 0.06 0.04 0.04 0.02 0.02 0.02 55.72 ROJECT:IG E: BT No:15 Purpose code Gearcond.c. Validity code Gearcond.c. Validity code Gearcond.c. Validity code Gearcond.c. CATCH/HOU weight num 673.45 175.34 63.00 21.72 18.62 15.52 14.17 10.55 10.24 6.83 5.90	142 3 306 62 124 120 12 12 10	15.68 14.82 13.46 8.58 5.56 2.40 1.72 1.22 1.08 1.08 1.00 0.75 0.57 0.54 0.47 0.32 0.29 0.25 0.18 0.11 0.11 0.11 0.07 0.07 0.04 0.04 0.04 0.04 0.04 0.05 0.56 0.18 0.10 0.75 0.75 0.18 0.11 0.11 0.17 0.07 0.07 0.07 0.07 0.07	342 830 25.28

```
DR. FRIDTJOF NANSEN PROJECT: IG PROJECT STATION: 622

DATE: 26/ 6/04 GEAR TYPE: BT No:15 POSITION: Lat N 336

start stop duration Long E 829

TIME : 104:127 11:11:15 30 (min) Purpose code: 3

LOG : 105.27 106.72 1.44 Area code : 7

FDEPTH: 327 314 GearCond. code:

Towing dir: 3410 Wire out: 1000 m Speed: 30 kn*10
```

Sorted: 34 Kg Total catch: 426.36 CATCH/HOUR: 852.72

SPECIES	CATCH	/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Hypoclydonia bella	354.00	12560	41.51	
Parasudis fraser-bruenneri	330.36	29454	38.74	
Chlorophthalmus atlanticus	65.80	5860	7.72	
Illex coindetii	29.20	340	3.42	
Zenion longipinnis	18.00	1360	2.11	
Todaropsis eblanae	8.00	60	0.94	
Ariomma bendi	5.40	280	0.63	
Setarches guenther:	5.20	340	0.61	
Polymetme corythaeola	5.00	360	0.59	
Hexanchus griseus	4.52	2	0.53	
Todarodes sagittatus	4.00	20	0.47	
Synagrops microlepis	4.00	200	0.47	
Galeus polli	3.60	260	0.42	
Ijimaia loppei	2.80	20	0.33	
Scyliorhinus sp.	2.40	20	0.28	
Parapenaeus longirostris	1.80	120	0.21	
Calappa-like with spines	1.40	60	0.16	
Trigla lyra	1.20	20	0.14	
Malacocephalus laevis	1.20	40	0.14	
Arionma melanum	1.00	40	0.12	
Lophius vaillanti	0.80	20	0.09	
Dibranchus atlanticus	0.80	120	0.09	
GALATHEIDAE	0.40	20	0.05	
Plesionika martia	0.40	100	0.05	
Peristedion cataphractum	0.40	40	0.05	
Solenocera africana	0.20	30	0.02	
Monolene microstoma	0.20	20	0.02	
Heterocarpus ensifer	0.20	40	0.02	
Stereomastis sp.	0.20	20	0.02	
Chascanopsetta lugubris	0.20	20	0.02	
Chaunax pictus	0.04	2		
Total	852.72		99.97	

DR. F.	RIDTJOF NA	NSEN		PR	OJECI	:IG	P.	ROJECT	T STAT	ricn:	623
DATE:	26/ 6/04		GEA	R TYPE	: BT	No:15	POS	ITION	:Lat	N	333
	start	stop	durati	on					Long	E	832
TIME	:13:32:33	14:02:10	30	(min)	Purp	ose coo	le:	3			
LOG	: 121.88	123.47	1.59		Area	code		7			
FDEPT.	H: 111	129			Gear	Cond.co	de:				
BDEPT	H: 111	129			Vali	dity co	de:				
	Towing d	ir: 3200	Wire	out: 3	20 m	Speed	30	kn*10	0		

39.71 CATCH/HOUR;

Total catch:

Sorted:

Kq

SPECIES

Squatina oculata
Dentex congeonsis
Dentex angolensis
Illex coindetii
Priacanthus arenatus
Todaropsis eblanae
Zeus faber
Citharus linguatula
Lepidotrigla cadmani
Raja sp.
Raja miraletus
Astropecten sp.
Spicara alta
Dibranchus atlanticus
Sphoeroides pachgaster
Sepia officinalis hierredda
Antigonia capros
Bembrops greyi
Cyttopais roseus
Malacocephalus laevis
Boops boops
Galeus polli
Chascanopetta lugubris
Uranoscopus albesca
Pterothrissus belloci
Setarches quentheri
Peristedion cataphractum
Lepidotrigla carnes
Ijmana loppei
Stereomastis sp. CATCH/HOUR SPECIES % OF TOT. C SAMP weight 21.00 15.78 15.08 numbers 180 258 152 2826 2825 124 1000 288 6 6 154 34 20 20 22 22 20 16 6 6 6 24 20 10 11 21 8 8 6 6 Lepidotrigla carclae Ijimaia leppei Stereomastis sp. Microchirus wittei Parapandalus narval Physiculus huloti Squilla mantis Heterocarpus ensifer Scorpaena normani 2 4 2 2 0.02 0.03 79.42 99.99 Total

		TJOF NAI	SEN				PRO	ECT	: IG		PROJE	CT STAT	: MOIT	624
DATE:	1/	7/04			GEA	R TY	PE:	BT I	No:15	PO.	SITIO	N:Lat	N	414
		start	stop		durati	on						Long	E	841
TIME	:0	5:19:39	05:49	:05	29	(min) E	urp	ose c	ode:	3			
LOG	: .	404.20	405.	66	1.45		P	rea	code		: 6			
FDEPTH	:	20		23			G	ear	Cond.	code	:			
BDEPTH	:	20		23			1	ali	dity	code				
	T	owing d	ir: 13	10	Wire	out:	120	m	Spee	d: 3	0 kn*	10		

PECIES	CATCH/HOUR	8	OF	TOT.	C	SAME
	weight numbers					

161.44 CATCH/HOUR:

Total catch:

Sorted: 33 Kg

SPECIES	CATCH	1/HOUR	% OF TOT. C	SAMP
	weight	numbers		
JELLYFISH	110.69	114	33.14	
Nematopalaemon hastatus	36.21	62586	10.84	
Ilisha africana	27.62	2328	8.27	
Callinectes amnicola	24.72	517	7.40	
Pseudotolithus elongatus	24.62	497	7.37	2828
Chloroscombrus chrysurus	17.17	693	5,14	2852
Brachydeuterus auritus	16.76	714	5.02	2851
Trichiurus lepturus	15.83	507	4.74	
Parapenaeopsis atlantica	11.46	1614	3.43	2832
Pseudotolithus typus	9.72	217	2.91	2829
Pseudotolithus senegalensis	9.31	207	2.79	2827
Pisodonophis semicinctus	5.17	31	1.55	
Squilla acuelata calmani	4.66	238	1.40	
Galeoides decadactylus	4.66	124	1.40	
Penaeus notialis	3.21	114	0.96	2831
Cynoglossus monodi	2.69	424		
Penaeus monodon	2.36	23	0.71	2830
Pteroscion peli	1.24	83	0.37	
Lagocephalus laevigatus	1.14	21	0.34	
Pentanemus quinquarius	1.03	31	0.31	
Pseudotolithus epipercus	0.62	10	0.19	
Sepia officinalis hierredda	0.41	103	0.12	
Alectis alexandrinus	0.41	31	0.12	
Hemicaranx bicolor	0.41	21	0.12	
Chloroscombrus Juvenile	0.31	631	0.09	
Batrachoides liberiensis	0.31	10	0.09	
Selene dorsalis	0.31	31	0.09	
Scomberomorus tritor	0.31	10	0.09	
Syacium micrurum	0.21	10	0.06	
Sardinella maderensis	0.21	21	0.06	
Hemicaranx bicolor juv.	0.10	10	0.03	
Cepola macrophthalma	0.10	10		
Cymbium cymbium	0.10	10	0.03	
Bathygobius paganellus	0.10	10	0.03	
Total	334.18		100.05	

DR. FI			ANSE	N		1	PROJECT	r:IG	P	ROJECT	STAT	: NOI	625
DATE:	1/	7/04			GE.	AR TYP	E: BT	No:15	POS	ITION:	Lat	N	408
		start	s	top	durat	ion					Long	E	838
TIME	:0	7:37:4	0 08	:07:21	30	(min)	Pur	oose co	de:	3			
LOG	: .	419.80	4	21.31	1.51		Area	a code	;	6			
FDEPTH	1:	60		56			Gear	Cond.c	ode:				
BDEPTH	1:	60		56			Val:	idity c	ode:				
	T	owing	dir:	300¢	Wire	out:	170 m	Speed	: 30	kn*10)		

Sorted:	32 Kg	Total catch:	58.67	CATCH/HOUR:	117.34
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SPECIES	CATCH	1/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Saurida brasiliensis	44.60	21152	38.D1	
Parapenaeus longirostris	13.84	54	11.79	
Brachydeuterus auritus Juv.	11.44	3052	9.75	
Brachydeuterus auritus	8.48	488	7.23	
Citharus linguatula	5.36	108	4.57	
Uranoscopus albesca	5.12	72	4.36	
Epinephelus aeneus	4.00	4	3,41	
Cymbium cymbium	3.58	4	3.05	
Selar crumenophthalmus	3.26	20	2.78	
Raja miraletus	3.24	28	2.76	
Calappa pelii	1.92	8	1.64	
Serranus accraensis	1.32	48	1.12	
Bathygobius paganellus	1.08	296	0.92	
JELLYFISH	1.00	24	0.85	
Penaeus notialis	0.88	32	0.75	
Portunus validus	0.84	36	0.72	
Hemicaranx bicolor	0.84	8	0.72	
Illex coindetii	0.80	8	0.68	
Alloteuthis africana	0.80	120	0.68	
Sepia officinalis hierredda	0.70	10	0.60	
Sepia juveniles	0.52	112	0.44	
Priacanthus arenatus	0.52	4	0.44	
Syacium micrurum	0.52	76	0.44	
Pagellus bellottii	0.52	2	0.44	
Grammoplites gruveli	0.48	32	0.41	
Trichiurus lepturus	0.40	4	0.34	
Antennarius sp.	0.40	8	0.34	
Parapenaeopsis atlantica	0.28	4	0.24	
Scyllarides herklotsii	0.24	16	0.20	
Echinocardium sp.	0.12	8	0.10	
Sardinella maderensis	0.08	4	0.07	
Pontinus accraensis	0.08	8	0.07	
Sphoeroides marmoratus	0.04	8	0.03	
Sicyonia galeata	0.04	8	0.03	
Total	117.34		99.98	

DR. FRIDTJOF NANSEN PROJECT: IG PROJECT STATION: 626

DATE: 1/7/04 GEAR TYPE: BT No:15 POSITION: Lat N 407

start stop duration Long E 844

IGHT 10:43:00 30 (min) Purpose code: 3

LOG : 438:16 439.69 1.52 Area code : 6

FDEPTH: 60 61 GearCond.code:

BDEPTH: 60 61 Validity code:

Towing dir: 1300 Wire out: 170 m Speed: 30 km·10

Sorted: 17 Kg Total catch: 17.53 CATCH/HOUR: 35.06

Cymbium cymbium 3.92 10 11.18 Illex coindeti 3.12 40 8.90 Raja miraletus 2.72 24 7.75 Pagellus bellottis 1.92 28 5.48 28 Saurida brasiliensis 1.22 250 3.48 28 Leptocharias smithi 1.04 2 2.97 Pentheroscion mbizi 0.92 18 2.62 2 12 20 Prentheroscion mbizi 0.92 18 2.62 2 12 20 Prentheroscion mbizi 0.92 18 2.62 2 12 20 Prenacus more 0.78 4 2.22 2 Drepane africana 0.66 10 1.88 4 1.24 1.24 2 1.94 1.44 1.88 1.14 1.48 Penacus motialis 0.50 10 1.43 1.48 1.25 Titulus representation provides 0.42 2 1.20 2 1.20 3.20 1.23 1.25 1.25 1.25 1.20<	SPECIES	CATCH	/HOUR	% OF	TOT. C	SAMP
Brach/deuterus auritus 3.92 628 11.18 28:		weight	numbers			
Symbium cymbium 3.92 10 11.18 11ex coindeti	Epinephelus aeneus	9.90	4		28.24	
Tilex coindetii	Brachydeuterus auritus	3.92	628		11.18	2834
Raja miraletus	Cymbium cymbium	3.92	10		11.18	
Pagellus bellotti	Illex coindetii	3.12	40		8.90	
Saurida brasiliensis	Raja miraletus	2.72	24		7.76	
Leptocharias smithii	Pagellus bellottii	1.92	28		5.48	2833
Pentheroscion mbizi	Saurida brasiliensis	1.22			3.48	
Pistularia petimba	Leptocharias smithii	1.04	2		2.97	
Drepane africana	Pentheroscion mbizi	0.92	18		2.62	
Lepidotrigla cadmani	Fistularia petimba	0.78	4		2.22	
Alloteuthis africana Penaeus notialis Penaeus notialis Penaeus longirostris Parapenaeus longiros	Drepane africana		24		1.94	
Penaeus notialis	Lepidotrigla cadmani	0.66	10		1.88	
Parapenaeus longirostris	Alloteuthis africana	0.52	134		1.48	
Trichiurus lepturus Sepia officinalis hierredda Sepia officinalis hierredda Grammoplites gruveli Chilomycterus spinosus mauret. Citharus linguatula Codaropsis eblanae Ortunus validus Serramus accraensis Cerramus coraensis Cerramus Cerra	Penaeus notialis				1.43	
Sepia officinalis hierredda	Parapenaeus longirostris					
Grammoplites gruveli 0.36 18 1.03 chlomycterus spinosus mauret. 0.30 2 0.86 Citharus linguatula 0.28 28 0.80 Todaropsis eblanae 0.16 2 0.46 9crtunus validus 0.12 6 0.34 Serranus accraensis 0.10 4 0.29 Lepidotrigla carolae 0.08 6 0.23 Scyllarides herklotsi 0.08 10 0.23 Scyllarides herklotsi 0.08 10 0.23 Syacium micrurum 0.08 18 0.23 Sardinella maderensis 0.06 4 0.17 Bathygobius pagnallus 0.06 12 0.17 Lephiodes kempi 0.06 2 0.17 Cc R A B S 0.04 2 0.11 Liocarcinus corrugatus 0.04 8 0.11 Cynoglossus browni 0.04 8 0.11 Parapenaeopsis atlantica 0.04 4 0.11 Parapenaeopsis atlantica 0.04 4 0.11 Parapenaeopsis atlantica 0.02 2 0.06 Scorpaena normani 0.02 4 0.06 Dentex angolensis 0.02 2 0.06		0.42	2		1.20	
Chilomycterus spinosus mauret. 0.30 2 0.86 Citharus linguatula 0.28 28 0.80 Todaropsis eblanae 0.16 2 0.46 Portunus validus 0.12 6 0.34 Serranus accraensis 0.10 4 0.29 Lepidotrigla carolae 0.08 6 0.23 Syacium micrurum 0.08 10 0.23 Syacium micrurum 0.08 18 0.23 Syacium micrurum 0.06 18 0.23 Syacium micrurum 0.06 18 0.21 Sardinella maderensis 0.06 4 0.17 Bathygobius paganellus 0.06 12 0.17 Lophiodes kempi 0.06 2 0.17 CR A B S 0.04 2 0.11 Liocarcinus corrugatus 0.04 8 0.11 Cyngolossus browni 0.04 9 0.11 Decapterus punctatus 0.04 4 0.11 Decapterus punctatus 0.04 4 0.11 Parapenaeopsis atlantica 0.02 2 0.06 Scorpaena normani 0.02 2 0.06 Dentex angolensis 0.02 2 0.06			38			
Citharus linguatula 0.28 28 0.80 Todaropsis eblanae 0.16 2 0.46 Portunus validus 0.12 6 0.34 Serranus accraensis 0.10 4 0.29 Lepadotrigla carolae 0.08 6 0.23 Scyllarides herklotsii 0.08 10 0.23 Scyllarides herklotsii 0.08 10 0.23 Syacium micrurum 0.08 18 0.23 Sardinella maderensis 0.06 4 0.17 Bathyqobius paganellus 0.06 12 0.17 Lophiodes kempi 0.06 2 0.17 Cc R A B S 0.04 2 0.11 Liocarcimus corrugatus 0.04 8 0.11 Cynoglossus browni 0.04 8 0.11 Cynoglossus browni 0.04 4 0.11 Parapenaeopsis atlantica 0.02 2 0.06 Scorpaena normani 0.02 2 0.06 Blennius normani 0.02 4 0.06 Dentex angolensis 0.02 2 0.06					1.03	
Todaropsis eblanae	Chilomycterus spinosus mauret.				0.86	
Portunus validus						
Serranus accraensis						
Lepidotrigla carolae	Portunus validus					
Scyllarides	Serranus accraensis					
Syacium micrurum						
Sardinella maderensis 0.06 4 0.17 Bathygobius paganellus 0.06 12 0.17 Lophiodes kempi 0.06 2 0.17 C R A B S 0.04 2 0.11 Liocarcinus corrugatus 0.04 8 0.11 Cynoglossus browni 0.04 4 0.11 Decapterus punctatus 0.04 4 0.11 Parapenaeogsis atlantica 0.02 2 0.06 Scorpaena normani 0.02 2 0.06 Blennius normani 0.02 2 0.06 Ariomma bondi 0.02 2 0.06 Dentex angolensis 0.02 2 0.06						
Bathygobius paganellus						
Lophiodes kemp1						
C R A B S 0.04 2 0.11 Liocarcinus corrugatus 0.04 8 0.11 Cynoglossus brown 0.04 4 0.11 Decapterus punctatus 0.04 4 0.11 Parapenaeopsis atlantica 0.02 2 0.06 Scorpaena normani 0.02 2 0.06 Scorpaena normani 0.02 4 0.06 Ariomna bondi 0.02 2 0.06 Dentex angolensis 0.02 2 0.06						
Liocarcinus corrugatus						
Cynoglossus browni 0.04 4 0.11 Decapterus punctatus 0.04 4 0.11 Parapenaeogsis atlantica 0.02 2 0.06 Scorpaena normani 0.02 2 0.06 Blennius normani 0.02 4 0.06 Ariomma bondi 0.02 2 0.06 Dentex angolensis 0.02 2 0.06						
Decapterus punctatus						
Parapenaeopsis atlantica 0.02 2 0.06 Scorpaena normani 0.02 2 0.06 Blennius normani 0.02 4 0.06 Ariomma bondi 0.02 2 0.06 Dentex angolensis 0.02 2 0.06						
Scorpaena normani 0.02 2 0.06						
Blennius normani 0.02 4 0.06						
Ariomma bondi 0.02 2 0.06 Dentex angolensis 0.02 2 0.06						
Dentex angolensis 0.02 2 0.06						
			2			
Total 35.06 100.01	Dentex angolensis	0.02	2		0.06	
10001	Total	35.06		-	100.01	

DR. FRIDTJOF NAM	VSEN	PROJECT: IG	PROJECT	STATION:	627
DATE: 1/ 7/04	GE.	AR TYPE: BT No:15	POSITION:	Lat N	409
start	stop durat	ion		Long E	847
TIME :12:02:20	12:25:33 23	(min) Purpose co	ode: 3		
LOG : 447.02	448.24 1.21	Area code	: 6		
FDEPTH: 46	45	GearCond.	code:		
BDEPTH: 46	45	Validity	code:		
Towing d	ir: 1100 Wire	out: 165 m Speed	d: 30 kn*10	Ĵ	

Sorted: 58 Kg Total catch: 1028.38 CATCH/HOUR: 2682.73

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	2309.32	93772	86.08	2836
Selene dorsalis	312.26	2066	11.64	2835
Portunus validus	29.11	94	1.09	
Raja miraletus	12.68	94	0.47	
Sphyraena guachancho	6.57	188	0.24	
Penaeus notialis	5.63	188	0.21	
Uraspis helvola	2.35	13	0.09	
Epinephelus aeneus	1.98	10	0.07	
Bathygobius paganellus	0.94	282	0.04	
Trichiurus lepturus	0.47	141	0.02	
Parapenaeus longirostris	0.47	329	0.02	
Saurida brasiliensis	0.47	188	0.02	
Citharus linguatula	0.47	188	0.02	
Total	2682.72		100.01	

		IJOF NAI	SEN		PF	OJECT	:IG	P	ROJECT STAT	: MOI!	628
DATE:	1/	7/04		GEA	R TYPE	: BT	No:15	POS.	ITION:Lat	N	407
		start		durati					Long	E	857
TIME	:1	1:11:49	14:41:33	30	(min)	Purp	ose cod	e:	3		
LOG	: 4	462.26	463.85	1.58		Area	code	115	6		
FDEPTH	:	32	26			Gear	Cond. co	de:			
BDEPTH	: 1	32	26			Vali	dity co	de:			
	Te	owing d:	r: 295ø	Wire	out: 1	15 m	Speed:	30	kn*10		

Sorted: 22 kg Total catch: 163.19 CATCH/HOUR: 326.38

SPECIES	CATCH	HOUR	% OF TOT. C	SAMP
	weight	numbers		
Pseudotolithus elongatus	78.00	744	23.90	2837
Chelonia mydas	56.40	2	17.28	
Trichiurus lepturus	39.36	1392	12.06	2838
Ilisha africana	34.44	1980	10.55	2841
Pseudotolithus typus	22.92	288	7.02	2840
Portunus validus	16.80	468	5.15	
Elops lacerta	14.76	72	4.52	
Pteroscion peli	9.84	660	3.01	
Sphyraena guachancho	7.92	48	2.43	
Scomberomorus tritor	6.36	24	1.95	
Penaeus notialis	6.24	288	1.91	
Galeoides decadactylus	5.40	60	1.65	
Nematopalaemon hastatus	4.56	4836	1.40	
Drepane africana	4.20	144	1.29	2839
Chloroscombrus chrysurus	4.08	72	1.25	2842
Pseudotolithus senegalensis	3.12	96	0.96	
Pseudotolithus brachygnathus	2.64	12	0.81	
Cynoglossus canariensis	2.52	36	0.77	
Brachydeuterus auritus	2.04	48	0.63	
Selene dorsalis	1.44	60	0.44	
Lycondontis afer	0.84	12	0.26	
Sardinella maderensis	0.72	36	0.22	
Antennarius sp.	0.48	96	0.15	
Penaeus monodon	0.30	2	0.09	
Pomadasys peroteti	0.28	2	0.09	
Sepiella ornata	0.24	36	0.07	
Squilla acuelata calmani	0.12	60	0.04	
Chloroscombrus Juvenile	0.12	108	0.04	
Sphoeroides pachgaster	0.12	12	0.04	
Lagocephalus lagocephalus	0.12	12	0.04	
Total	326.38		100.02	

PRO	JECT: IG	PROJECT STAT	ION:	629
GEAR TYPE:	BT No:15	POSITION: Lat	N	405
duration		Long	E	855
19 30 (min)	Purpose code	e: 3		
9 1.57	Area code	: 6		
1	GearCond.cod	de:		
1	Validity cod	de:		
	GEAR TYPE: duration 19 30 (min) 9 1.57	duration 19 30 (min) Purpose cod 9 1.57 Area code 1 GearCond.co	GEAR TYPE: BT No:15 POSITION:Lat duration Long 19 30 (min) Purpose code: 3 9 1.57 Area code : 6 1 GearCond.code:	GEAR TYPE: BT No:15 POSITION:Lat N duration Long E 19 30 (min) Purpose code: 3 Area code : 6 1 GearCond.code:

Sorted: 37 Kg Total catch: 93.01 CATCH/HOUR: 186.02

SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	150.60	3246	80.96	
Cymbium cymbium	10.86	30	5.84	
Sphyraena guachancho	6.60	6	3.55	
Ilisha africana	4.20	108	2.26	
Selene dorsalis	2.94	14	1.58	
Caranx hippos	2.44	10	1.31	
Brachydeuterus auritus Juv.	2.34	240	1.26	
Uraspis helvola	2.04	4	1.10	
Sepia orbignyana	0.62	2	0.33	
Epinephelus aeneus	0.56	4	0.30	
Penaeus notialis	0.56	18	0.30	
Raja miraletus	0.40	2	0,22	
Selar crumenophthalmus	0.34	4	0.18	
Pseudotolithus elongatus	0.28	2	0.15	
Trichiurus lepturus	0.26	6	0.14	
Bathygobius paganellus	0.18	96	0.10	
Portunus valídus	0.18	6	0.10	
Saurida brasiliensis	0.18	90	0.10	
Citharus linguatula	0.18	12	0.10	
Antennarius sp.	0.14	4	0.08	
Alloteuthis africana	0.06	6	0.03	
Serranus accraensis	0.06	6	0.03	
Total	186.02		100.02	

DR. FRIDTJOF NANSEN	PROJECT: IG	PI	ROJECT STAT	IGN: 630
DATE: 1/ 7/04 GEAR TY	PE: BT No:1	5 POS	ITION:Lat	N 401
start stop duration			Long	E 853
TIME :17:34:05 18:04:13 30 (min	Purpose	code:	3	
LOG : 482,23 483.74 1.47	Area coo		6	
FDEPTH: 61 60	GearCond			
BDEPTH: 61 60	Validity			
Towing dir: 110¢ Wire out:			kn*10	
Sorted: Kg Total catch:	64.67	CAT	CH/HOUR:	129.34
		78.70		
SPECIES	CATCH/F		% OF TOT.	C SAMP
		numbers		
Brachydeuterus auritus Juv.	36.60	4604	28.30	2844
Epinephelus aeneus	24.60	4	19.02	
Saurida brasiliensis	18.24	6036	14.10	
Dentex angolensis	7.66	56	5.92	2843
Decapterus punctatus	5.32	580	4.11	
Parapenaeus longirostris	3.68	532	2.85	
Venus verrucosa	3.52	176	2.72	
Uranoscopus albesca	3.00	36	2.32	
Pagellus bellottii	2.88	86	2,23	
Chilomycterus spinosus mauret.	2.72	12	2.10	
Echinocardium sp.	1.80	68	1.39	
Sepia officinalis hierredda	1.76	12	1.36	
Brachydeuterus auritus	1.68	56	1.30	
Citharus linguatula	1.64	176	1.27	
	1.24	1,0	0.96	
Brotula barbata				
Serranus accraensis	1.20	44	0.93	
Grammoplites gruveli	1.20	64	0.93	
Raja miraletus	1.12	12	0.87	
Sphyraena guachancho	1.08	4	0.84	
Syacium micrurum	0.96	228	0.74	
Calappa pelii	0.84	4	0.65	
Alloteuthis africana	0.84	336	0.65	
Ariomma bondi	0.64	16	0.49	
Bathygobius paganellus	0.60	156	0.46	
Priacanthus arenatus	0.56	40	0.43	
Sepia juveniles	0.52	56	0.40	
Lepidotrigla cadmani	0.52	12	0.40	
JELLYFISH	0.48	16	0.37	
Caranx hippos	0.40	2	0.31	
Penaeus notialis	0.36	12	0.28	
CRABS	0.24	8	0.19	
Illex coindetii	0.24	4	0.19	
Lepidotrigla carolae	0,16	8	0.12	
Lophius vaillanti	0.16	8	0.12	
	0.12	4	0.12	
Octopus vulgaris	0.12	16	0.09	
Scyllarides herklotsii				
Paronchelius stauchi	0.08	8	0.06	
Blennius normani	0.08	12	0.06	
Ilisha africana	0.08	8	0.06	
Microchirus frechkopi	0.08	4	0.06	
Portunus validus	0.08	4	0.06	
Gobius sp	0.08	4	0.06	
Pontinus accraensis	0.08	20	0.06	
'Spider crab'	0.04	4	0.03	
Zeus faber	0.04	4	0.03	

DR. FRIDTJOF NANSEN	PROJECT: IG		JECT STATIC	ON: 631
DATE: 1/ 7/04 GEAR	TYPE: PT No:	7 POSIT	ION:Lat 1	V 405
start stop duration			Long I	85
TIME :21:21:20 21:51:03 30 (m	in) Purpose	code: 3		
LOG : 506.14 507.73 1.58	Area cod	le : 6		
FDEPTH: 0 0	GearCond	l.code:		
BDEPTH: 30 28	Validity	code:		
Towing dir: 321ø Wire ou	t: 120 m Spe	ed: 30 ki	n*10	
Sorted: 36 Kg Total cate	h: 35.81	CATCH.	/HOUR:	71.62
SPECIES	CATCH/F	IOUR %	OF TOT. C	SAMI
	weight r	numbers		
J E L L Y F I S H	42.30	94	59.06	
Caranx senegallus	12.92	48	18.04	2846
Chloroscombrus chrysurus	4.88	42	6.81	
Scomberomorus tritor	4.20	18	5.86	
Sardinella maderensis - Juv.	1.38	182	1.93	2845
Sardinella maderensis	1.24	24	1.73	284
Sphyraena guachancho	1.16	8	1.62	
Trachinotus ovatus	0.96	4	1.34	
Raja miraletus	0.84	10	1.17	
Selene dorsalis	0.70	4	0.98	
Albula vulpes	0.44	2	0.61	
Ilisha africana	0.28	20	0.39	
Trichiurus lepturus	0.16	20	0.22	
Chloroscombrus Juvenile	0.16	168	0.22	
Total	71.62		99.98	

DR. FRIDTJOF NANSEN	I	PROJECT: I	G P	ROJECT STAT	ION: 632
DATE: 2/ 7/04	GEAR TYP	E: PT No	: 2 POS	ITION:Lat	N 404
	duration			Long	E 845
TIME :00:04:50 00:34:31	30 (min)	Purpos	e code:		
LOG : 523.37 525.10	1.68	Area c			
FDEPTH: 1 1		GearCo:	nd.code:		
BDEPTH: 64 63		Validi	ty code:		
Towing dir: 300¢	Wire out:	140 m S	peed: 40	kn*10	
Sorted: Kg Tot	al catch:	13.1	7 (247)	CH/HOUR:	26.34
	ar outour		CHI	citt nook.	20.14
SPECIES					
SPECIES		CATCH		% OF TOT.	SAMP
Scomberomorus tritor		weight 12.64	numbers		
Saurida brasiliensis		3.30	26	47.99	
Sardinella maderensis		2.94	408		
Euthynnus alletteratus		2.94	20	11.16	2850
Sphyraena quachancho		1.90	4	8.66	
Ariomma bondi			4	7.21	
Sardinella maderensis - Juv.		1.42	24		2010
Bregmaceros sp.		1.00	120	3.80	2849
Selar crumenophthalmus		0.54	778		
Echeneis naucrates		0.14	2 2	0.53	
Alloteuthis africana				0.23	
Aluterus heudelotii		0.04	22	0.15	
Priacanthus arenatus		0.04	2 2	0.15	
ar allatus		0.02	2	0.08	
Total		26.32		99.93	

DR. FRIDTJOF NANSEN DATE: 2/ 7/04 GE	PROJECT: IG		JECT STATIC	
	AR TYPE: BT No:15	POSIT		
start stop durat			Long E	90
TIME :05:25:13 05:55:05 30	(min) Purpose c			
LOG : 565,23 566,65 1.41				
FDEPTH: 56 56	GearCond.			
BDEPTH: 56 56	Validity			
Towing dir: 300¢ Wire	out: 170 m Spee	d: 30 k	n*10	
Sorted: Kg Total ca	atch: 29.96	CATCH	I/HOUR:	59.92
SPECIES	CATCH/HO	UR %	OF TOT. C	SAM
	weight nu	mbers		
Saurida brasiliensis	16.84	6780	28.10	
Parapenaeopsis atlantica	7.42	1412	12.38	
Brachydeuterus auritus	5.46	384	9.11	285
Pagellus bellottii	3.30	16	5.51	
Sepia officinalis hierredda	3.06	18	5.11	
Fistularia petimba	2.64	24	4.41	
Caranx senegallus	1.88	6	3.14	
Chilomycterus spinosus mauret.	1.86	6	3.10	
Sphyraena guachancho	1.78	18	2.97	285
Sepia juveniles	1.56	216	2.60	107010
Epinephelus aeneus	1.32	4	2,20	
Brotula barbata	1.28	4	2.14	
Serranus accraensis	1.20	58	2.00	
JELLYFISH	1.18	24	1,97	
Raja miraletus	1.18	10	1.97	
Citharus linguatula	1.02	68	1.70	
Syacium micrurum	0.98	230	1.64	
Alloteuthis africana	0.72	142	1,20	
Uranoscopus albesca	0.72	22	1.20	
Grammoplites gruveli	0.70	34	1.17	
Calappa pelii	0.68	4	1.13	
Lagocephalus laevigatus	0.56	2	0.93	
Cymbium cymbium	0.42	2	0.70	
Scyllarides herklotsii	0.36	60	0.60	
Venus verrucosa	0.32	14	0.53	
Sardinella maderensis	0.32	6	0.53	
Lepidotrigla cadmani	0.22	4	0.37	
Penaeus notialis	0.18	6	0.30	
Illex coindetii	0.18	2	0.30	
Lophiodes kempi	0.14	10	0.30	
Echinocardium sp.	0.08	10	0.23	
Lepidotrigla carolae	0.06	8	0.13	
Dicologoglossa cuneata	0.04	2	0.10	
Cynoponticus ferox	0.04	2	0.07	
Centrolophus niger	0.04	2	0.07	
Bathygobius paganellus	0.04	40	0.07	
Blennius normani	0.04	14	0.07	
Sicyonia galeata				
'Unidentfied crab'	0.04	10	0.07	
Serranus africana	0.02	2	0.03	
Serranus arricana Pontinus accraensis		2 2	0.03	
rontinus accidensis	0.02	2	0.03	
Total	50 02		00.00	

59.92

99.98

Total

Total

Sorted: 37 Kg Total catch: 191.31 CATCH/HOUR: 382.62

SPECIES	CATCH	I/HOUR	% OI	TOT. C	SAMP
	weight	numbers			
Nematopalaemon hastatus	104.64	288336		27.35	
Trichiurus lepturus	83.16	8316		21.73	
Ilisha africana	68.76	5940		17.97	2856
Pteroscion peli	59.76	4368		15.62	
Pseudotolithus elongatus	15.84	204		4.14	
Portunus validus	13.20	708		3.45	
Cynoponticus ferox	7.50	18		1.96	
Brachydeuterus auritus	5.88	348		1.54	2855
Scomberomorus tritor	4.32	12		1.13	
Sphyraena guachancho	4.24	24		1.11	
Selene dorsalis	3.00	144		0.78	
Elops lacerta	2.40	6		0.63	
Grammoplites gruveli	2.04	252		0.53	
Antennarius sp.	1.56	336		0.41	
Penaeus notialis	1.32	84		0.34	
Cynoglossus canariensis	1.20	6		0.31	
Pseudotolithus senegalensis	0.76	6		0.20	
Fistularia petimba	0.64	4		0.17	
Bathygobius paganellus	0.60	276		0.16	
Squilla acuelata calmani	0.60	24		0.16	
Brotula barbata	0.36	60		0.09	
Sepiella ornata	0.24	18		0.06	
Octopus vulgaris	0.24	2		0.06	
Sicyonia galeata	0.12	12		0.03	
Sardinella maderensis	0.12	12		0.03	
Scyllarides herklotsii	0.12	12		0.03	
Total	382.62			99.99	

DR. FR	IDTJCF NA	NSEN		PR	OJECT	: IG	P	ROJEC	T STAT	: NOI	635
DATE:	2/ 7/04		GEA!	R TYPE	: BT 1	No:15	POS	ITION	:Lat	N	351
	start	stop	durati	on					Long	E	911
TIME	:09:35:17	10:05:06	30	(min)	Purp	ose co	le:	3			
LOG	: 589.86	591.49	1.61		Area	code	:	6			
FDEPTH	: 21	28			Gear	Cond. co	: ebc				
BDEPTH	: 21	28			Valid	dity co	ode:				
	Towing d:	r: 300¢	Wire o	out: 1	20 m	Speed	: 30	kn*1	0		

Sorted: 33 Kg Total catch: 196.98 CATCH/HOUR: 393.96

SPECIES	CATCH	I/HOUR	% OF	TOT. C	SAMP
	weight	numbers			
Nematopalaemon hastatus	81.48	41826		20.68	
JELLYFISH	62.28	108		15.81	
Trichiurus lepturus	60.96	480		15.47	
Ilisha africana	54.24	1908		13.77	
Pseudotolithus elongatus	35.16	384		8.92	2858
Pteroscion peli	20.28	504		5.15	2857
Brachydeuterus auritus	13.44	528		3.41	2861
Chloroscombrus chrysurus	10.80	576		2.74	
Portunus validus	9.60	492		2.44	
Pseudotolithus typus	9.60	72		2.44	2862
Selene dorsalis	7.68	276		1.95	
Pentheroscion mbizi	7.56	120		1.92	2859
Sphyraena guachancho	6.24	168		1.58	
Cynopenticus ferox	3.88	10		0.98	
Galeoides decadactylus	3.84	36		0.97	2860
Pseudotolithus senegalensis	1.32	36		0.34	
Pisodonophis semicinctus	1.08	8		0.27	
Squatina oculata	0.96	36		0.24	
Sepiella ornata	0.96	144		0.24	
Parapenaeopsis atlantica	0.72	228		0.18	
Lutjanus goreensis	0.40	2		0.10	
Penaeus notialis	0.36	12		0.09	
Penaeus monodon	0.28	2		0.07	
Grammoplites gruveli	0.24	36		0.06	
Sardinella maderensis	0.24	12		0.06	
Cynoglossus browni	0.12	12		0.03	
Hemicaranx bicolor	0.12	24		0.03	
Brotula barbata	0.12	12		0.03	
Total	393.96		_	99.97	

DR. FRIDTJOF NANSEN	PROJECT: IG	PROJEC	T STATIO	N: 636
	PE: BT No:15	POSITION		
start stop duration			Long E	909
TIME :11:24:02 11:54:05 30 (min) Purpose co	de: 3		
LOG : 600.55 601.97 1.41	Area code	: 6		
FDEPTH: 37 32	GearCond.c	ode:		
BDEPTH: 37 32	Validity of	ode:		
Towing dir: 130¢ Wire out:	152 m Speed	l: 30 kn*1	.0	
Sorted: 34 Kg Total catch:	169.50	CATCH/HC	UR: 3	39.00
SPECIES				100000000000000000000000000000000000000
SPECIES	CATCH/HOU		TOT. C	SAMP
Brachydeuterus auritus		bers		
Trichiurus lepturus		7210	27.14	
Sphyraena quachancho	82.00	6214	24.19	Total Control of the
	78.00	1230	23.01	2863
Chloroscombrus chrysurus Penaeus notialis	30.60	470	9.03	2865
Selene dorsalis	12.40	610	3.66	
Sepia officinalis hierredda	8.70	290	2.57	2864
Portunus validus	7.30	12	2.15	
Nematopalaemon hastatus	4.70	90	1.39	
Ilisha africana		2180	1.24	
Scomberomorus tritor	4.20	220	1.24	2866
Caranx hippos	2.40	20	0.71	
Epinephelus aeneus	2.30	10	0.68	
Octopus vulgaris	2.00	30	0.59	
Pseudotolithus senegalensis	1.10	10	0.32	
Alloteuthis africana	0.90	10	0.27	
Bathygobius paganellus	0.70	820 350	0.21	
Sardinella maderensis			0.21	
Dicologoglossa cuneata	0.70	70	0.21	
Pisodonophis semicinctus	0.60	10	0.18	
Penaeus kerathurus	0.52	4	0.15	
Lethrinus atlanticus	0.50	10	0.15	
Psettodes belcheri	0.48	2	0.14	
	0.40	10	0.12	
Grammoplites gruveli	0.40	50	0.12	
Farapenaeus longirostris Uranoscopus albesca	0.20	110	0.06	
	0.20	70	0.06	
Sicyonia galeata	0.10	10	0.03	
Sepiella ornata Antennarius sp.	0.10	10	0.03	
Antennarius sp. Saurida brasiliensis	0.10	30	0.03	
	0.10	10	0.03	
Pteroscion peli	0.10	30	0.03	
Pseudupeneus prayensis	0.10	10	0.03	
Cynoglossus canariensis	0.10	10	0.03	

100.01

DR. FRIDTJOF NANSEN	PROJECT: IG I	PROJECT STATION: 63	7
		SITION:Lat N 34	
start stop duration		Long E 91	
TIME :13:45:38 14:15:18 30 (min) Purpose code:		
LOG : 617.19 618.68 1.48		6	
FDEPTH: 25 26	GearCond.code:		
BDEPTH: 25 26	Validity code:		
Towing dir: 280¢ Wire out:			
	and the measure is		
Sorted: 32 Kg Total catch:	201.50 CA3	CH/HOUR: 403.00	
SPECIES	CATCH/HOUR	% OF TOT. C SAMI	Ρ
	weight numbers		
Ilisha africana	93.84 3564	23.29 2869	9
Chloroscombrus chrysurus	91.20 2796		1
Brachydeuterus auritus	36.12 1092	8.96 287	3
Sphyraena guachancho	29.64 120	7.35 2873	2
Selene dorsalis	28.80 564	7.15 2870	Û
Galeoides decadactylus	26.52 468	6.58 286	7
Trichiurus lepturus	24.60 1224	6.10	
Pteroscion peli	13.56 2400	3.36	
Sardinella maderensis	10.06 180	2.50 2874	4
Sphyraena afra	7.50 2	1.86	
Elops lacerta	6.24 24	1.55	
Parapenaeopsis atlantica	5.04 3246	1.25	
Rhizoprionedon acutus	4.20 2	1.04	
Epinephelus aeneus	3.12 12	0.77	
Pseudotolithus senegalensis	3.00 96	0.74	
Drepane africana	3.00 84	0.74	
Caranx hippos	2.54 12	0.63 2868	8
Scomberomorus tritor	2.10 6	0.52	
Portunus validus	2.04 96	0.51	
Nematopalaemon hastatus	1.92 736	0.48	
Cynoglossus browni	1.20 12	0.30	
Selar crumenophthalmus	0.96 12	0.24	
Psettodes belcheri	0.86 8	0.21	
Penaeus notialis	0.84 60	0.21	
Sepiella ornata	0.84 72	0.21	
Penaeus monodon	0.82 6	0.20	
Squilla acuelata calmani	0.48 12	0.12	
Citharichthys stampflii	0.48 36	0.12	
Pisodonophis semicinctus	0.48 2		
Pomadasys jubelini	0.44 2		
Hemicaranx bicolor	0.24 2	0.06	
Alloteuthis africana	0.24 72		
Echeneis naucrates	0.02 2		
Total	402.94		
IVIAI	404.94	99.97	

start stop duration TIME :15:29:17 15:59:09 30 (mi LOG : 626.85 628.52 1.68 FDEPTH: 18 20 BDEPTH: 18 20 Towing dir: 1150 Wire out	CYPE: BT No:15 POSIT: (n) Purpose code: 3 Area code : 6 GearCond.code: Validity code: :: 116 m Speed: 30 km	Long E	343 920	start stop duration TIME :20:00:05 21:41:02 29 (m LCQ : 670.87 672.68 1.80 FDEPTH: 1 1 BDEPTH: 21 22 Towing dir: 3350 Wire ou	in) Purpose code: 3 Area code: 6 GearCond.code: Validity code:
Sorted: 10 Kg Total catch	1: 81.04 CATCH,	HOUR: 16	2.08	Sorted: 17 Kg Total cate	h: 17.42 CATCH/HOUR: 36.04
SPECIES	weight numbers	OF TOT. C	SAMP	SPECIES	CATCH/HOUR % OF TOT. C SAMP weight numbers
Sphyraena guachancho Chloroscombrus chrysurus	24.00 108 21.60 670	14.81 13.33	2878	J E L L Y F I S H Ethmalosa Fimbriata	14.90 23 41.34 4.86 66 13.49 2879
Sardinella maderensis Polydactylus quadrifilis	16.92 236 14.70 2 12.24 258	10.44 9.07 7.55	2875	Sardinella maderensis Ilisha africana	3.21 99 8.91 2881 2.46 139 6.83 2882
Selene dorsalis Galeoides decadactylus Ilisha africana	12.24 258 10.26 222 8.64 338	6.33 5.33	2876	Sphyraena guachancho Chloroscombrus chrysurus Nematopalaemon hastatus	1.94 10 5.38 1.92 58 5.33 2880
Brachydeuterus auritus Pseudotolithus senegalensis	6.60 204 5.58 30	4.07	2070	Selene dorsalis Trichiurus lepturus	1.68 4759 4.66 1.22 17 3.39 1.14 10 3.16
Pseudotolithus typus Trichiurus lepturus	5.28 48 4.94 66	3.26 3.05	2877	Scomberomorus tritor Brachydeuterus auritus	1.12 4 3.11 0.66 17 1.83
Pomadasys jubelini Caranx senegallus	4.80 18 4.32 12	2.96		Selar crumenophthalmus Portunus validus	0.27 2 0.75 0.25 10 0.69
Scomberomorus tritor Selar crumenophthalmus	2.46 12 2.28 18 2.28 66	1.52 1.41 1.41		Trachinotus ovatus Pseudotolithus elongatus	0.12 2 0.33 0.12 2 0.33
Pteroscion peli Pentheroscion mbizi Drepane africana	2.28 66 2.22 120	1.41		Liza grandisquamis Pseudotolithus senegalensis Hemicaranx bicolor	0.08 2 0.22 0.04 2 0.11 0.02 2 0.06
Portunus validus Penaeus notialis	2.16 66 1.62 72	1.33		Chloroscombrus Juvenile	0.02 2 0.06
Psettodes belcheri Liza grandisquamis	1.62 18 0.96 6	1.00 0.59		Total	36.03 99.98
Cynoglossus browni Hemicaranx bicolor	0.84 6 0.84 12	0.52		DR. FRIDTJOF NANSEN	PROJECT:IG PROJECT STATION: 641
Liza falcipinnis Mugil curema Sepiella ornata	0.72 6 0.66 6 0.54 510	0.44 0.41 0.33		start stop duration	
Sepia officinalis hierredda Squilla mantis	0.48 48 0.12 12	0.30		TIME :00:00:23 01:40:10 30 (m LOG : 701.59 703.10 1.50 FDEPTH: 1 1	in) Purpose code: 3 Area code : 6 GearCond.code:
Alectis alexandrinus Parapenaeopsis atlantica	0.06 6 0.06 12	0.04		BDEPTH: 33 34	Validity code: t: 120 m Speed: 40 kn*10
Total	162.08	100.02		Sorted: 2 Kg Total catch	
				SPECIES	CATCH/HOUR % OF TOT. C SAMP
				Sardinella maderensis	weight numbers 1.90 72 42.99 2883
		ECT STATION ON:Lat N	339	Ethmalosa fimbriata Sphyraena guachancho	0.80 10 18.10 0.74 2 16.74
start stop duration TIME :17:05:47 17:33:04 27 (mi LOG : 637.36 638.74 1.42	n) Purpose code: 3 Area code : 6	Long E	929	Trichiurus lepturus Portunus validus Trachinotus ovatus	0.56 8 12.67 0.14 6 3.17 0.08 2 1.81
FDEPTH: 25 22 BDEPTH: 25 22	GearCond.code: Validity code:			Ilisha africana Brachydeuterus auritus	0.06 6 1.36 0.04 2 0.90
Towing dir: 3000 Wire out		*10		Sepiella ormata Chloroscombrus chrysurus	0.04 24 0.90 0.04 2 0.90
Sorted: Kg Total catch	: 238.98 CATCH	HOUR: 53	1.07	Sepia juveniles	0.02 42 0.45
SPECIES	CATCH/HOUR % weight numbers	OF TOT. C	SAMP	Total	4.42 99.99
Nematopalaemon hastatus Pseudotolithus typus	231.00 565942 92.24 1338	43.50 17.37		DR. FRIDTJOF NANSEN DATE: 3/ 7/04 GEAR	PROJECT:IG PROJECT STATION: 642 TYPE: BT No:15 POSITION:Lat N 333
Trichiurus lepturus Ilisha africana	30.18 1167 26.13 1244	5.68 4.92		start stop duration TIME :05:20:35 05:49:12 29 (m:	Long E 918
Pentheroscion mbizi Pseudotolithus elongatus	19.44 280 18.04 280	3.66		LOG : 710.50 711.89 3.29 FDEPTH: 44 44	Area code : 6 GearCond.code:
Pentanemus quinquarius Pteroscion peli JELLYFISH	15.56 42 14.31 451 12.29 16	2.93 2.69 2.31		BDEPTH: 44 44 Towing dir: 340ø Wire ou	Validity code: t: 150 m Speed: 30 kn+10
Pseudotolithus senegalensis Chloroscombrus chrysurus	10.89 420 9.64 218	2.05		Sorted: Kg Total catch	h: 348.36 CATCH/HOUR: 720.74
Cynoponticus ferox Pomadasys jubelini	7.29 22 6.22 47	1.37		SPECIES	CATCH/HOUR % OF TOT. C SAMP
Portunus validus Brachydeuterus auritus	5.91 156 5.44 93	1.11		JELLYFISH	weight numbers 707.59 7988 98.18
Pseudotolithus moorii Sphyraena guachancho Selene dorsalis	4.82 31 4.36 16 4.04 233	0.91 0.82 0.76		Selene dorsalis Sepia officinalis hierredda Saurida brasiliensis	9.31 87 1.29 2884 1.88 8 0.26 0.70 17 0.10
Sepia officinalis hierredda Penaeus monodon	2.33 78 2.09 16	0.44		Sardinella maderensis Epinephelus aeneus	0.50 12 0.07 0.43 2 0.06
Parapenaeopsis atlantica Sardinella maderensis	2.02 249 2.02 109	0.38		Parapenaeopsis atlantica Schedophilus pemarco	0.12 4 0.02 0.10 2 0.01
Pisodonophis semicinctus Trachinotus ovatus	1.67 11 1.56 31	0.31		Brachydeuterus auritus Alloteuthis africana	0.06 8 0.01 0.02 2
Drepane africana Brotula barbata	0.78 62 0.31 47 0.31 16	0.15 0.06 0.06		Sicyonia galeata	0.02 2
Galeoides decadactylus Cynoglossus browni	0.16 31	0.03		Total	720.73 100.00
Total	531.05	99.98			PROJECT:IG PROJECT STATION: 643 TYPE: BT No:15 POSITION:Lat N 325
				start stop duration TIME :07:29:37 07:40:37 11 (mc LOG : 725.24 725.57 0.33	
				LOG : 725.24 725.57 0.33 FDEPTH: 134 135 BDEPTH: 134 135	Area code : 6 GearCond.code: 8 Validity code: 4
				Towing dir: 3450 Wire out	: 360 m Speed: 30 kn*10
				Sorted: Kg Total catch	
				SPECIES	CATCH/HOUR % OF TOT. C SAMP weight numbers
				JELLYFISH Dentex angolensis Dentex congoensis	75.27 671 92.80 4.64 27 5.72 2885 0.60 5 0.74
				Sepia officinalis hierredda Citharus linguatula	0.60 5 0.74 0.33 5 0.41 0.16 5 0.20
				Parapenaeus longirostris Saurida brasiliensis	0.05 5 0.06 0.05 5 0.06
				Total	81 10 99 99

Total

81.10

TIME :09:21:52 09:51:02 LOG : 734.08 735.56 FDEPTH: 78 76 BDEPTH: 78 76 Towing dir: 311¢		324	start stop durati TIME :13:51:18 14:21:11 30 LOG : 764.69 766.25 1.54 FDEPTH: 22 24 BDEFTH: 22 24	<pre>(min) Purpose code: 3 Area code : 6 GearCond.code: Validity code: out: 111 m Speed: 30 kn*10</pre>	320 940
\$1964-00 CONSTITUTE SERVICE ▼			Total Co	cent. 147.45 CATCH/HOOK: 94	1.86
SPECIES Dentex congoensis Sepia officinalis hierredda Squatina cculata Priacanthus arenatus Dentex angolensis Lepidotrigla cadmani Pagellus bellottii Illex coindetii Epinephelus aeneus Pentheroscion mbizi J E L L Y F I S H Fistularia petimba Serranus accraensis Aricmena bondi Decapterus punctatus Sphoeroides marmoratus Sphoeroides marmoratus Sphoeroides pachigaster Lepidotrigla carolae Saurida brasiliensis Blennius normani Total	CATCH/HOUR % OF TOT. C numbers 13.99 8.34 62 20.80 7.01 4 17.48 3.14 93 7.83 1.74 33 4.34 0.91 21 2.27 0.77 11.85 0.62 2 1.55 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.43 2 1.07 0.31 10 0.77 0.27 4 0.67 0.19 6 0.47 0.14 2 0.35 0.14 4 0.35 0.14 4 0.35 0.10 2 0.25 0.10 2 0.25	SAMP 2886 2887	Galeoides decadactylus Sphyraena afra Sphyraena quachancho Brachydeuterus auritus Pteromylaeus bovinus Pseudotolithus senegalensis Caranx hippos Scomberomorus tritor Drepane africana Elops lacerta Pseudotolithus brachygnathus Pseudotolithus brachygnathus Pseudotolithus typus Tliaha africana Spinephelus aeneus Chloroscombrus chrysurus Lucjanus goreensis Balistes punctatus Trichiurus lepturus Pteroscion peli Chaetodipterus goreensis Selene doraalis Alectis alexandrinus Sardinela maderensis Psettodes belcheri Hemicaranx bicolor Portunus validus	weight numbers 19.0 20.24 10.80 6 9.50 60 10.70 10.01 8.38 174 8.83 7.50 2 7.91 6.22 32 6.56 5.66 38 5.97 5.22 20 5.50 4.52 52 4.76 2.72 12 2.87 2.10 6 2.21 2.08 10 2.19 1.62 102 1.71 1.26 2 1.33 1.22 26 1.29 1.14 2 1.20 0.70 2 0.74 0.66 68 0.70 0.64 12 0.67 0.60 4 0.63 0.55 0.50 44 0.53 0.54 0.55 0.55 0.55 0.50 4 0.53 0.46	SAMP 2900 2895 2894 2899 2902 2898 2896 2897 2903
DR. FRIDTJOF NANSEN	PROJECT:IG PROJECT STATIC	N: 645	Panulirus regius Lolligoncula mercatoris Todaropsis eblanae	0.2D 2 0.21 0.18 188 0.19 0.12 2 0.13	
DATE: 3/ 7/04 start stop d	GEAR TYPE: BT No: 8 FOSITION:Lat Nuration Long E	328	Sepiella ornata Selar crumenophthalmus	0.04 20 0.04 0.04 2 0.04	
TIME :11:29:10 11:59:10 LOG : 747.58 749.05 FDEPTH: 26 28			Total	94.84 99.97	
BDEPTH: 26 28	Validity code: Wire out: 129 m Speed: 30 kn*10				
		68.44			
			DR. FRIDTJOF NANSEN DATE: 3/ 7/04 GEA	PROJECT:IG PROJECT STATION: R TYPE: BT No: 8 POSITION:Lat N	647 319
SPECIES	CATCH/HOUR % OF TOT. C weight numbers	SAMP	start stop durati TIME :15:38:10 16:08:13 30	on Long E	934
Pseudotolithus senegalensis Trichiurus lepturus	12.04 100 17.59 8.08 80 11.81	2892 2893	LOG : 775.29 776.82 1.56 FDEPTH: 34 31	Area code : 6 GearCond.code:	
Galeoides decadactylus Ilisha africana	7.70 114 11.25 7.68 322 11.22	2890 2889	BDEPTH: 34 31 Towing dir: 77¢ Wire	Validity code: out: 131 m Speed; 30 kn*10	
Sphyraena guachancho Scomberomorus tritor	5.96 202 8,71 5.20 42 7.60	2888 2891	Sorted: Kg Total ca	:ch: 13.86 CATCH/HOUR: 27	.72
Rhizoprionodon acutus Sphyrna lewini	2.46 8 3.59 2.40 2 3.51				
Pseudotolithus typus Brachydeuterus auritus	2.14 10 3.13 1.78 122 2.60		SPECIES	weight numbers	SAMP
Selene dorsalis Alectis alexandrinus Cynoponticus ferox	1.72 60 2.51 1.52 2 2.22 1.00 2 1.46		Alectis alexandrinus Pagrus caeruleostictus	6.56 16 23.67	2904
Chloroscombrus chrysurus Pteroscion peli	0.94 16 1.37 0.84 20 1.23		Lagocephalus laevigatus Epinephelus aeneus Sphyraena afra	5.42 30 19.55 1.40 2 5.05	
Psettodes belcheri Drepane africana	0.82 6 1.20 0.82 24 1.20		Sepia officinalis hierredda Selene dorsalis	1.34 2 4.83 0.70 2 2.53 0.56 6 2.02	
Sepiella ornata Lagocephalus laevigatus	0.74 260 1.08 0.74 6 1.08		Psettodes belcheri Fistularia petimba	0.56 6 2.02 0.50 4 1.80 0.46 2 1.66	
Decapterus punctatus Hemicaranx bicolor	0.60 14 0.88 0.50 4 0.73		Caranx hippos Chloroscombrus chrysurus	0.20 2 0.72 0.18 4 0.65	
Caranx hippos Pomadasys jubelini	0.50 4 0.73 0.46 2 0.67		Brachydeuterus auritus Todaropsis eblanae	0.12 4 0.43 0.12 2 0.43	
Priacanthus arenatus Pseudotolithus brachygnathus	0.44 12 0.64 0.38 4 0.56		Chilomycterus spinosus mauret. Sardinella maderensis	0.10 2 0.36	2905
Sardinella maderensis Todaropsis eblanae	0.32 26 0.47 0.20 10 0.29		Trichiurus lepturus Alloteuthis africana	0.06 4 0.22 0.06 14 0.22	2707
Lolligoncula mercatoris Lethrinus atlanticus	0.16 256 0.23 0.16 2 0.23		Lolligoncula mercatoris	0.04 52 0.14	
Selar crumenophthalmus Ariomma bondi	0.06 2 0.09 0.04 4 0.06		Total	27.72 99.99	
Cynoglossus browni Portunus validus Total	0.02 2 0.03 0.02 2 0.03 		start stop duration of the story of the start story duration of the start story of the st		648 318 930
			LOG : 784.08 785.54 1.45 PDEPTH: 57 47 BDEPTH: 57 47 Towing dir: 77¢ Wire	Area code : 6 GearCond.code: Validity code: ut: 160 m Speed: 30 kn*10	
			Sorted: Kg Total cal	ch: 32.85 CATCH/HOUR: 67.	.97
			SPECIES		SAMP
			JELLYFISH	weight numbers 57.52 722 84.63	
			Alloteuthis africana Sphyraena guachancho Pagellus bellottii		2907
			Halistes capriscus Epinephelus aeneus	0.89 2 1.31 0.72 2 1.06	2906
			Saurida brasiliensis Brachydeuterus auritus Juv.	0.72 166 1.06 0.66 387 0.97	
			Fistularia petimba Decapterus punctatus	0.27 4 0.40 0.10 17 0.15	
			Ariomma bondi juv. Penaeus notialis	0.08 25 0.12 0.06 2 0.09	
			Priacanthus arenatus Brachydeuterus auritus	0.04 2 0.06 0.04 2 0.06	
			Trichiurus lepturus Syacium micrurum	0.02 4 0.03 0.02 2 0.03	
			Total	67.91 99.93	

67.91

DR. FRIDTJOF NANSEN	PROJECT:IG PE: PT No: 7	PR	OJECT STAT	ION: 649
start stop duration			Long	N 323 E 934
TIME :23:19:48 23:49:36 30 (min LOG : 833.23 834.83 1.57) Purpose c Area code	ode:	3	
FDEPTH: 1 1 BDEPTH: 27 30	GearCond.		0	
	Validity		1	
Towing dir: 257¢ Wire out:				
Sorted: 2 Kg Total catch:	2.04	CATC	H/HOUR:	4.08
SPECIES	CATCH/HO	UR	% OF TOT.	C SAMP
JELLYFISH	weight nu 1.90	mbers 44	46.57	
Raja miraletus	0.74	4	18.14	
Sardinella maderensis Alloteuthis africana	0.66	36 216		
Ilisha africana	0.24	28	5.88	
Brachydeuterus auritus Lolligoncula mercatoris	0.12	6 10	2.94	
Sepiella ornata	0.02	6	0.49	
Saurida brasiliensis	0.02	4	0.49	
Total	4.08		100.00	
		2200	SETTING CONTRACTOR	
DR. FRIDTJOF NANSEN DATE: 4/ 7/04 GEAR TY	PROJECT:IG PE: BT No: 8	PR	OJECT STAT TION:Lat	ION: 650 N 308
start stop duration			Long	E 928
TIME :05:34:26 06:04:14 30 (min LOG : 873.31 874.77 1.46	Purpose c Area code	ode:	6	
FDEPTH: 128 128	GearCond.	code:		
BDEPTH: 128 128 Towing dir: 155¢ Wire out:	Validity	code:	kn=10	
				222 227
Sorted: Kg Total catch:	158.81	CATC	H/HOUR:	317.62
SPECIES	CATCH/HO	UR	% OF TOT.	C SAMP
	weight nu	mbers		
Dentex congoensis Illex coindetli	94 50	2750 2250	50.56 29.75	
Spicara alta	13.70	250	4.31	2911
Ariomma bondi Priacanthus arenatus	11.80 11.70	260 100	3.72 3.68	2910
Squatina oculata	11.26	6		
Dentex angolensis	9.60	120		2912
Zeus faber Raja miraletus	2.10	10	0.66	
Physiculus huloti	0.90	10	0.28	
Citharus linguatula Pterothrissus belloci	0.30	20 10	0.09	
7		(50.00)		
Total	317.62		99.98	
		2000		
DATE: 4/ 7/04 GEAR TY	PROJECT:IG PE: BT No: 8	POSI	OJECT STAT. TION:Lat	ION: 651 N 309
scarc scop duraction			Long	E 933
TIME :07:27:36 07:57:11 30 (min LOG : 883.46 884.85 1.39	Area code			
FDEPTH: 87 88	GearCond.			
BDEPTH: 87 88 Towing dir: 155¢ Wire out:	Validity 160 m Spee		kn*10	
Sorted: 36 Kg Total catch:	35.54	CATC	H/HOUR:	71.08
SPECIES			% OF TOT.	C SAMP
Dentex congoensis	weight nu 20.60	mbers 352	28.98	2916
Ariomma bondi	12.04	180	16.94	2913
Sepia officinalis hierredda Dentex angolensis	11.92 8.42	58 84	16,77 11.85	2915 2914
Priacanthus arenatus	7.84	98	11.03	2714
Lepidotrigla cadmani Illex coindetii	2.64	48	3.71 3.43	
IIIex colimetii		42		
Lepidotrigla carolae	2.44	42 76	2.42	
Spicara alta	2.44 1.72 0.84	76 6	2.42 1.18	
	2.44 1.72 0.84 0.60 0.48	76	2.42	
Spicara alta Raja miraletus Saurida brasiliensis Decapterus punctatus	2.44 1.72 0.84 0.60 0.48 0.48	76 6 2 100 26	2.42 1.18 0.84 0.68 0.68	
Spicara alta Raja miraletus Saurida brasiliensis	2.44 1.72 0.84 0.60 0.48	76 6 2 100	2.42 1.18 0.84 0.68	
Spicara alta Raja miraletus Saurida brasiliensis Decapterus punctatus Fistularia petimba Sphoeroides pachgaster Pagellus bellottii	2.44 1.72 0.84 0.60 0.48 0.24 0.22 0.22	76 6 2 100 26 4 6 2	2.42 1.18 0.84 0.68 0.68 0.34 0.31	
Spicara alta Raja miraletus Saurida brasiliensis Decapterus punctatus Fistularia petimba Sphoeroides pachqaster Pagellus bellottii Alloteuthis africana	2.44 1.72 0.84 0.60 0.48 0.24 0.22 0.22 0.16	76 6 2 100 26 4 6 2 56 2	2.42 1.18 0.84 0.68 0.68 0.34 0.31	
Spicara alta Raja miraletus Saurida brasiliensis Decapterus punctatus Fistularia petimba Sphoeroides pachyaster Pagellus bellottii Alloteuthis africana Zeus faber Serranus accraensis	2.44 1.72 0.84 0.60 0.48 0.24 0.22 0.22 0.16 0.10	76 6 2 100 26 4 6 2 56 2	2.42 1.18 0.84 0.68 0.68 0.34 0.31 0.23 0.14	
Spicara alta Raja miraletus Saurida brasiliensis Decapterus punctatus Fistularia petimba Sphoeroides pachyaster Pagellus bellottii Alloteuthis africana Zeus faber Serranus accraensis	2.44 1.72 0.84 0.60 0.48 0.24 0.22 0.22 0.16 0.10	76 6 2 100 26 4 6 2 56 2	2.42 1.18 0.84 0.68 0.38 0.31 0.31 0.31	
Spicara alta Raja miraletus Saurida brasiliensis Decapterus punctatus Fistularia petimba Spihoeroides pacingaster Pagellus bellettii Alloteuthis africana Zeus faber	2.44 1.72 0.84 0.60 0.48 0.24 0.22 0.22 0.16 0.10 0.06	76 6 2 100 26 4 6 2 56 2 2	2.42 1.18 0.84 0.68 0.68 0.34 0.31 0.23 0.14 0.08	
Spicara alta Raja miraletus Saurida brasiliensis Decapterus punctatus Fistularia petimba Sphoeroides pachquaster Pagellus bellottii Alloteuthis africana Zeus faber Serranus accraensis Sea urchins (waek spines) Parapenaeus longirostris	2.44 1.72 0.84 0.60 0.48 0.24 0.22 0.16 0.10 0.06	76 6 2 100 26 4 6 2 56 2 2 2 8	2.42 1.18 0.84 0.68 0.34 0.31 0.23 0.14 0.08 0.03	
Spicara alta Raja miraletus Saurida brasiliensis Decapterus punctatus Fistularia petimba Sphoeroides pachqaster Pagellus bellottii Alloteuthis africana Zeus faber Serranus accraensis Sea urchins (waek spines) Parapenaeus longirostris Blennius normani	2.44 1.72 0.84 0.60 0.48 0.24 0.22 0.22 0.16 0.10 0.06 0.02	76 6 2 100 26 4 6 2 56 2 2 2 8	2.42 1.18 0.84 0.68 0.34 0.31 0.31 0.23 0.14 0.08 0.03	

DR. FRIDTJOF NANSEN	PROJECT:IG PE: BT No:) Purpose	P	ROJECT STAT	rion: 652
DATE: 4/ 7/04 GEAR TY start stop duration	PE: BI NO:	8 205	Long	N 309 E 946
start stop duration TIME :09:50:45 10:20:48 30 (min LOG : 899.38 900.83 1.43 FDEPTH: 28 BDEPTH: 28 28) Purpose	code:	3	
FDEPTH: 28 28	GearCond	d.code:	0	
BDEPTH: 28 28 Towing dir: 260¢ Wire out:	Validity	code:	l	
Sorted: 32 Kg Total catch:				63.04
SPECIES	CATCH/I	10UR	% OF TOT.	
Scomberomorus tritor	16.60	82	26.33	2924 2919 2920
Brachydeuterus auritus Sphyraena guachancho	12.50	266 18	19.83	2919
Priacanthus arenatus	2.90	40	4.60	2320
Orepane africana Saleoides decadactylus	2.86	16	4.54	2923 2918
Sphyraena afra	2.42	2	3.84	
Psettodes belcheri Caranx senegallus	2.28	12	3.62 3.59	
Epinephelus aeneus	2.06	2	3.27	
Sphyraena-juveniles Sardinella maderensis - Juv.	1.78	96	3.27 2.82 2.66	2921 2922
Ariomma bondi	1.16	16	1.84	
Sepiella ornata Selene dorsalis	0.92	416	1.46	
Alectis alexandrinus	0.74	12	1.17	2925
Chloroscombrus chrysurus Panulirus regius	0.72	14	1.14	
Elops lacerta	0.58	2	1.14 0.92	
JELLYFISH Todaropsis eblanae	0.56	60	0.89	
Illex coindetii	0.46	2	0.79	
Ilisha africana Pomadasys jubelini	CATCH/F weight r 16.60 12.50 3.46 2.90 2.86 2.74 2.42 2.28 2.26 2.06 1.78 1.68 1.16 0.92 0.74 0.72 0.58 0.56 0.50 0.44 0.42 0.32 0.32 0.32 0.32 0.18 0.16 0.12 0.02 0.02	18	0.70	
Pseudotolithus brachygnathus	0.32	2	0.51	
Frichiurus lepturus Caranx hippos	0.30	126	0,48	
Decapterus punctatus	0.18	14	0.33	
Pseudotolithus senegalensis Selar crumenophthalmus	0.16	2	0.25	
Chaetodipterus goreensis	0.12	2	0.19	
Sepidotrigla cadmani Chloroscombrus Juvenile	0.06	2	0.10	
Alectis alexandrinus juv.	0.02	20	0.03	
Lagocephalus laevigatus	0.02	2	0.03	
Total	63.04		100.01	
DR. FRIDTJOF NANSEN DATE: 4/ 7/04 GFAR TV	PROJECT:IG	8 POST	ROJECT STAT	ION: 653
DR. FRIDTJOF NANSEN DATE: 4/ 7/04 GEAR TY start stop direction TIME (11:58:54 12:28:42 30 (min			Long	E 949
TIME :11:58:54 12:28:42 30 (min	Purpose	code:	3	
FDEPTH: 24 23	GearCond	.code:		
TIME :11:58:54 12:28:42 30 (min LOG : 913.01 914.60 1.59 FDEPTH: 24 23 BDEPTH: 24 23 Towing dir: 350¢ Wire out:	GearCond Validity 111 m Spe	code: code: ed: 30	kn*10	
Towing dir: 350¢ Wire out:	111 m Spe	ed: 30	kn*10	24 52
FDEPTH: 24 23 BDEPTH: 24 23 Towing dir: 3500 Wire out: Sorted: Kg Total catch:	111 m Spe	ed: 30	kn*10 CH/HOUR:	24.52
Towing dir: 3500 Wire out: Sorted: Kg Total catch:	111 m Spe 12.26	ed: 30	kn*10 CH/HOUR:	
Towing dir: 350s Wire out: Sorted: Kg Total catch: SPECIES	111 m Spe 12.26 CATCH/H	ed: 30 CATO	kn*10 CH/HOUR:	C SAMP
Towing dir: 3506 Wire out: Sorted: Kg Total catch: SPECIES Scomberomorus tritor	111 m Spe 12.26 CATCH/H	ed: 30 CATO	kn*10 CH/HOUR:	C SAMP
Towing dir: 350s Wire out: Sorted: Kg Total catch: SPECIES Scombercmorus tritor Alectis alexandrinus Drepane africana	111 m Spe 12.26 CATCH/H	ed: 30 CATO	kn*10 CH/HOUR:	C SAMP 2927 2926 2928
Towing dir: 350s Wire out: Sorted: Kg Total catch: SPECIES Scomberomorus tritor Alectis alexandrinus	111 m Spe 12.26 CATCH/H	ed: 30 CATO	kn*10 CH/HOUR:	C SAMP 2927 2926 2928
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scomberomorus tritor Alectis alexandrinus Drepane africana Pterothrissus belloci Srachydeuterus auritus	111 m Spe 12.26 CATCH/H	ed: 30 CATO	kn*10 CH/HOUR:	C SAMP 2927 2926 2928
Towing dir: 350s Wire out: Sorted: Kg Total catch: SPECIES Scomberomorus tritor Alectis alexandrinus Drepane africana Spinephelus alexandrinus Peterothrissus belloci Brachydeuterus auritus Alilomycterus apinosus mauret.	111 m Spe 12.26 CATCH/H	ed: 30 CATO	kn*10 CH/HOUR:	C SAMP 2927 2926 2928
Towing dir: 350s Wire out: Sorted: Kg Total catch: SPECIES Scombercmorus tritor Alectis alexandrinus Drepane africana Spinephelus alexandrinus * Pterothrissus belloci Brachydeuterus auritus Chilomycterus spinosus mauret. Saleoides decadactylus Sphyraena sp.	111 m Spe 12.26 CATCH/H	ed: 30 CATO	kn*10 CH/HOUR:	C SAMP 2927 2926 2928
Towing dir: 350s Wire out: Sorted: Kg Total catch: SPECIES Scomberomorus tritor Alectis alexandrinus Driepane africana Driephelus alexandrinus * Peterothrissus belloci Brachydeuterus auritus Chilomycterus aprinosus mauret. Calecides decadactylus	111 m Spe 12.26 CATCH/H	OUR umbers 24 10 18 2 4 12 2 2 10 2 2	kn*10 CH/HOUR:	C SAMP 2927 2926 2928
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scombercmorus tritor Alectis alexandrinus Drepane africana Spinephelus alexandrinus *terothrissus belloci Brachydeuterus auritus Alecides decadactylus Sphyraena sp. Saranx senegallus Sardinella maderensis Alloteuthis africana	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06	ed: 30 CATC OUR umbers 24 10 18 2 4 12 2 10 2 8 14	kn*10 CH/HCUR: % OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 4.0.98 0.65 0.57 0.33	C SAMP 2927 2926 2928
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Towing dir: 350s Wire out: Sorted: Kg Total catch: SPECIES Scombercmorus tritor Alectis alexandrinus Drepane africana Spinephelus alexandrinus Pererothrissus belloci Brachydeuterus auritus Alecides decadactylus Sphyraena sp. Caranx senegallus Sardinella maderensis Alloteuthis africana Colligoncula mercatoris Decapterus punctatus Sepiella ornata	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.04 0.04 0.02	ed: 30 CATC OUR umbers 24 10 18 2 4 12 2 2 10 2 8 14 124 6	kn*10 H/HCUR: % OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.98 0.95 0.57 0.33 0.24 0.16 0.08	C SAMP 2927 2926 2928
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Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scomberomorus tritor Alectis alexandrinus Drepane africana Drepane africana Drepane africana Species Scomberomorus alexandrinus Perothrissus belloci Brachydeuterus auritus Chilomycterus spinosus mauret. Saleoides decadactylus Sphyraena sp. Daranx senegallus Sardinella maderensis Alloteuthis africana Deligoncula mercatoris Decapterus punctatus Sepiella ornata Total DR. FRIDTJOF NANSEN DATE: 4/ 7/04 Sepiella ornata Total DR. FRIDTJOF NANSEN DATE: 4/ 7/04 Sepiella ornata Total Sepiella ornata Total Co. : 925.07 926.62 1.86 FPDPTH: 50 50 BDEPTH: 50 50 Towing dir: 340s Wire out: Sorted: Kg Total catch: SPECIES JE L L Y F I S H Brachydeuterus auritus Scomberomorus tritor Sallstes capriscus	111 m Spe 12.26 CATCH/H weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06 0.04 0.02 24.52 PROJECT:IG E: BT No: Purpose Area cod GearCond Validity 164 m Spe 308.29 CATCH/H weight n 600.00 5.12 4.04 2.60	CATC OUR Umbers 24 10 18 2 2 2 2 2 10 2 8 14 124 6 20 CATC COde: e c.code: c.code: c.code: sed: 30 CATC CATC CATC OUR Umbers 5294 10 2 8 8 10 2 8 10 4 10 10 10 10 10 10 10 10 10 10	kn*10 CH/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.98 0.98 0.55 0.57 0.33 0.24 0.16 0.16 0.16 0.16 0.16 0.16 0.16 0.16	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scombercmorus tritor alectis alexandrinus Drepane africana Drepane africana Drepane africana Species Alecides decadactylus Sphynena sp. Caranx sengallus Sardinella maderensis Alloteuthis africana Olijoncula mercatoris Decapterus punctatus Sepiella ornata Total DR. FRIDTJOF NANSEN DATE: 4/ 7/04 Start stop duration TIME: 13:56:30 14:26:17 30 (min) LOG: 925.07 926.62 1.86 FPDETH: 50 50 BDEPTH: 50 50 BDEPTH: 50 50 Sorted: Kg Total catch: SPECIES JE L L Y F I S H Brachydeuterus auritus Scombercmorus tritor Salistes capriscus Forpedo torpedo	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06 0.04 0.002 24.52 PROJECT:IG PE: BT No: Purpose Area codd Validity 164 m Spe 308.29 CATCH/H Weight n 600.00 5.12 4.04 2.60 1.24	CATC COUR CATC COUR Lambers 24 10 18 2 4 12 2 2 2 10 2 8 14 124 6 20 COde: e e code: e code: code: 30 CATC CATC COUR CATC CATC COUR CATC CA	kn*10 H/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.65 0.57 0.33 0.24 0.16 0.16 0.16 0.16 0.16 0.16 0.83 99.98 HOJECT STAT TION:Lat Long 3 6 kn*10 HOUR: \$ OF TOT. 97.31 0.83 0.66 0.42 0.20	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scombercmorus tritor Alectis alexandrinus Oregane africana Oregane africana Oregane africana Species Alectis alexandrinus Perothrissus belloci Starchydeuterus auritus Anlongyterus apinosus mauret. Alecides decadactylus Sphyraena sp. Ararnx sengallus Sardinella maderensis Alloteuthis africana Olligoncula mercatoris Decapterus punctatus Sepiella ornata Total DR. FRIDTJOF NANSEN DATE: 4/ 7/04 start stop duration TIME: 13:56:30 14:26:17 30 (min.) LGG: 925.07 926.62 1.86 FDEPTH: 50 50 BDEPTH: 50 50 BDEPTH: 50 50 BDEPTH: 50 50 Sorted: Kg Total catch: SPECIES JE L L Y F I S H Grachydeuterus auritus Scomberomorus tritor Balistes capriscus Forpedo torpedo Alloteuthis africana Selar crumenophthalmus	111 m Spe	CATC	kn*10 H/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.65 0.57 0.33 0.24 0.16 0.16 0.16 0.16 0.83 99.98 HOJECT STAT TION:Lat Long 3 6 kn*10 HOUR: 97.31 0.83 0.66 0.42 0.20 0.16 0.16 0.16 0.83	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scomberomorus tritor Alectis alexandrinus Drepane africana Drepane africana Drepane africana Sphinephelus alexandrinus Pterothrissus belloci Rachydeuterus apritus Anilomycterus spinosus mauret. Alecides decadactylus Sphyraena sp. Caranx senegallus Sardinella maderensis Alloteuthis africana Coligoncula mercatoris Decapterus punctatus Sepiella ornata Total DR. FRIDTJOF NANSEN DATE: 4/ 7/04 Start stop duration TIME: 13:56:30 14:26:17 30 (mini) LOG: 925.07 926.62 1.86 FDEPTH: 50 50 FDEPTH: 50 50 FDEPTH: 50 50 Sorted: Kg Total catch: SPECIES J. E. L. Y. F. I. S. H Brachydeuterus auritus Scomberomorus tritor Salistes capriscus Torpedo torpedo Miloteuthis africana Belar crumenophthalmus Sepia officionalis hierredda	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06 0.04 0.02 24.52 PROJECT:IG E: BT No: Purpose Area cod GearCond Validity 164 m Spe 308.29 CATCH/H Weight n 600.00 5.12 4.04 2.60 1.24 1.00 0.68 0.42	COUR umbers 24 10 18 8 PSSI 10 Code: e code: code: code: code: code: S294 8 10 CATC	kn*10 CH/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.98 0.98 0.98 0.99 0.65 0.57 0.33 0.24 0.16 0.16 0.08 99.98 COJECT STAT TION:Lat Long 3 6 kn*10 CH/HOUR: 97.31 0.66 0.42 0.20 0.16 0.11 0.77	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scomberomorus tritor Alectis alexandrimus Drepane africana Drepane africana Drepane africana Sphyraena sp. Laranx senegallus Sardinella maderensis Alloteuthis africana Diligoncula mercatoris Decapterus punctatus Sepiella ornata Total DR. FRIDTJOF NANSEN DATE: 47 7/04 Start stop duration TIME: 13:56:30 14:26:17 30 (min) LOG: 925.07 926.62 1.86 FDEPTH: 50 50 BDEPTH: 50 50 Towing dir: 340s Wire out: Sorted: Kg Total catch: SPECIES JE L L Y F I S H Brachydeuterus auritus Scomberomorus tritor Salistes capriscus Torpedo torpedo Alloteuthis africana Sepial officinalis hierredda Selene dorsalis Drepane africana Selene crumenophthalmus Sepia officinalis hierredda Selene dorsalis Drepane africana	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06 0.04 0.02 24.52 PROJECT:IG FIRE BT No: Purpose Area codd Validity 164 m Spe 308.29 CATCH/H Weight n 600.00 1.12 4.04 1.00 0.68 0.42 0.34 0.34 0.32	CATC	kn*10 H/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.65 0.57 0.33 0.24 0.16 0.16 0.16 0.16 0.83 99.98 HOJECT STAT TION:Lat Long 3 6 kn*10 HOUR: 97.31 0.83 0.66 0.42 0.20 0.16 0.16 0.16 0.83	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scomberomorus tritor Alectis alexandrinus Drepane africana Drepane africana Drepane africana Species Arachydeuterus auritus Chilomycterus spinosus mauret. Alecides decadactylus Sphyraena sp. Aranx senegallus Aradinella maderensis Alloteuthis africana Coligoncula mercatoris Decapterus punctatus Sepiella ornata Fotal DR. FRIDTUOF NANSEN DATE: 4/ 7/04 Start stop duration TIME: 13.56:30 14:26:17 30 (min) LOG: 925.07 926.62 1.86 FPDETH: 50 50 BDEPTH: 50 50 BDEPTH: 50 50 BDEPTH: 50 50 Towing dir: 340s Wire cut: Sorted: Kg Total catch: SPECIES JE L L Y F I S H Brachydeuterus auritus Scomberomorus tritor Ballstes capriscus Corpedo torpedo Alloteuthis africana Belar crumenophthalmus Sepia officinalis hierredda Selene dorsalis Drepane africana Decapterus punctatus	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06 0.04 0.02 24.52 PROJECT:IG FIRE BT No: Purpose Area codd Validity 164 m Spe 308.29 CATCH/H Weight n 600.00 1.12 4.04 1.00 0.68 0.42 0.34 0.34 0.32	CATC COUR Umbers 24 10 18 2 2 2 10 2 8 14 122 2 2 10 2 8 14 124 6 20 CATC COUR Umbers 5294 6 20 CATC CUR Umbers 5294 2 340 16 2 4 4	kn*10 CH/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.65 0.57 0.33 0.44 0.16 0.16 0.16 0.16 0.16 0.16 0.17 TTION:Lat Long 3 6 kn*10 CH/HOUR: \$ OF TOT. 97.31 0.83 0.66 0.42 0.20 0.16 0.11 0.07 0.06 0.05	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Sorted: Kg Total catch: Scomberomorus tritor Alectis alexandrinus Drepane africana Drepane africana Spinephelus alexandrinus Perothrissus belloci Brachydeuterus auritus Chilomycterus spinosus mauret. Alalemycterus punctatus Sepiella ornata DR. FRIDTJOF NANSEN DATE: 4/ 7/04 Sepiella ornata DR. FRIDTJOF NANSEN DATE: 4/ 7/04 SEPIELUS DATE: 4/ 7/04 SEPIELUS DATE: 4/ 7/04 SEPIELUS SOPECIES JE L L Y F I S H Brachydeuterus auritus Scomberomorus tritor Ballstes capriscus Corpedo torpedo Alloteuthis africana Selar crumenophthalmus Sepia officionalis hierredda Selene dorsalis Drepane africana Secapterus punctatus Bagellus bellottii Sphyraena sp.	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.24 0.16 0.14 0.08 0.06 0.04 0.02 24.52 PROJECT:IG PROJECT:IG Purpose Area cod GearCond Validity 164 m Spe 308.29 CATCH/H Weight n 600.00 5.12 4.04 2.60 1.24 1.00 0.68 0.42 0.34	CATC COUR Language Lang	kn*10 CH/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.98 0.98 0.99 0.65 0.57 0.33 0.24 0.16 0.16 0.16 0.18 99.98 COJECT STAT TION:Lat Long 3 6 kn*10 CH/HOUR: 77.31 8.33 0.66 0.42 0.20 0.20 0.16 0.11 0.07 0.06 0.05	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scombercmorus tritor Alectis alexandrimus Drepane africana Drepane africana Species Alectis alexandrimus Perothrissus belloci Frachydeuterus auritus Anlionycterus apinosus mauret. Asleoides decadactylus Sphynaena sp. Caranx senegallus Sardinella maderensis Alloteuthis africana Colijoncula mercatoris Decapterus punctatus Sepiella ornata Potal DR. FRIDTJOF NANSEN DATE: 4/ 7/04 start stop duration TIME: 13:56:30 14:26:17 30 (min) LGG: 925.07 926.62 1.86 FDEPTH: 50 50 BDEPTH: 50 50 BDEPTH: 50 50 Sorted: Kg Total catch: SPECIES J. E. L. Y. F. I. S. H Brachydeuterus auritus Scombercmorus tritor Salistes capriscus Corpedo torpedo Alloteuthis africana Sepia officinalis hierredda Selene dorsalis Drepane africana Decapterus punctatus Pagellus bellottii Sphynaena sp. Penaeus notialis	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06 0.04 0.02 24.52 PROJECT:IG Purpose Area cod GearCond Validity 164 m Spe 308.29 CATCH/H Weight n 600.00 5.12 4.04 2.60 1.24 1.00 0.68 0.42 0.32 0.26 0.22 0.18	CATC CUR Umbers 24 10 18 2 2 2 2 2 2 2 2 2 2 2 2 2	kn*10 H/HCUR: * OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.65 0.57 0.33 0.24 0.16 0.16 0.16 0.88 99.98 kn*10 ### HOUR: ### HOUR: ### FTOT. 1 0.83 0.66 0.42 0.20 0.16 0.16 0.11 0.77 0.66 0.42 0.20 0.16 0.11 0.17 0.77 0.66 0.42 0.20 0.16 0.11 0.17 0.77 0.66 0.42 0.20 0.16 0.11 0.17 0.77 0.66 0.42 0.20 0.16 0.11 0.17 0.77 0.66 0.05 0.04 0.04 0.03 0.01	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Sorted: Kg Total catch: Scomberomorus tritor Alectis alexandrinus Drepane africana Drepane africana Spinephelus alexandrinus Perothrissus belloci Brachydeuterus auritus Chilomycterus spinosus mauret. Alalemycterus punctatus Sepiella ornata DR. FRIDTJOF NANSEN DATE: 4/ 7/04 Sepiella ornata DR. FRIDTJOF NANSEN DATE: 4/ 7/04 SEPIELUS DATE: 4/ 7/04 SEPIELUS DATE: 4/ 7/04 SEPIELUS SOPECIES JE L L Y F I S H Brachydeuterus auritus Scomberomorus tritor Ballstes capriscus Corpedo torpedo Alloteuthis africana Selar crumenophthalmus Sepia officionalis hierredda Selene dorsalis Drepane africana Secapterus punctatus Bagellus bellottii Sphyraena sp.	111 m Spe 12.26 CATCH/H weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06 0.04 0.02 24.52 PROJECT:IG E: BT No: Purpose Area cod Gearcond Validity 164 m Spe 308.29 CATCH/H weight n 600.00 5.12 4.04 2.60 1.24 1.00 0.68 0.42 0.34 0.32 0.26 0.22 0.18 0.04 0.04	CATCO CATCO CATCO COUR Land Lan	kn*10 CH/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.95 0.57 0.33 0.24 0.16 0.16 0.08 99.98 COJECT STAT TION:Lat Long 3 6 CH/HOUR: \$ OF TOT. 97.31 0.83 0.66 0.16 0.16 0.16 0.16 0.10 0.01 0.01	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scomberomorus tritor Alectis alexandrinus Drepane africana Drinephelus alexandrinus Terothrissus belloci Srachydeuterus auritus Thilomycterus spinosus mauret. Caleoides decadactylus Sphyraena sp. Caranx senegallus Sardinella maderensis Alloteuthis africana Coligoncula mercatoris Decapterus punctatus Sepiella ornata Total DR. FRIDTJOF NANSEN DATE: 47 7/04 Start stop duration TIME: 113:56:30 14:26:17 30 (mini) LOC: 925.07 926.62 1.86 FDEPTH: 50 50 Towing dir: 340s Wire out: Sorted: Kg Total catch: SPECIES JELLY FISH Brachydeuterus auritus Scomberomorus tritor Salistes capriscus Torpedo torpedo Alloteuthis africana Selar crumenophthalmus Sepia officionalis hierredda Selene dorsalis Drepane africana Decapterus punctatus Pagalus bellotti Sphyraena sp. Penaeus notialis Periacanthus arenatus	111 m Spe 12.26 CATCH/H Weight n 9.64 8.22 3.12 1.52 0.72 0.28 0.24 0.16 0.14 0.08 0.06 0.04 0.02 24.52 PROJECT:IG Purpose Area cod GearCond Validity 164 m Spe 308.29 CATCH/H Weight n 600.00 5.12 4.04 2.60 1.24 1.00 0.68 0.42 0.32 0.26 0.22 0.18	CATC OUR Umbers 24 10 18 2 2 2 2 2 2 2 2 2 2 2 2 2	kn*10 H/HCUR: * OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.65 0.57 0.33 0.24 0.16 0.16 0.16 0.88 99.98 kn*10 ### HOUR: ### HOUR: ### FTOT. 1 0.83 0.66 0.42 0.20 0.16 0.16 0.11 0.77 0.66 0.42 0.20 0.16 0.11 0.17 0.77 0.66 0.42 0.20 0.16 0.11 0.17 0.77 0.66 0.42 0.20 0.16 0.11 0.17 0.77 0.66 0.42 0.20 0.16 0.11 0.17 0.77 0.66 0.05 0.04 0.04 0.03 0.01	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929
Towing dir: 350s Wire out: Sorted: Kg Total catch: Species Scombercmorus tritor alectis alexandrimus Drepane africana Drepane africana Species Scombercmorus tritor alectis alexandrimus Perothrissus belloci Strachydeuterus auritus chilomycterus spinosus mauret. Aleoides decadactylus Sphyraena sp. Ararnx senegallus Sardinella maderensis alloteuthis africana olijonocula mercatoris Decapterus punctatus Sepiella ornata Total DR. FRIDTJOF NANSEN Sepiella ornata Total DR. FRIDTJOF NANSEN Sepiella ornata Total DR. FRIDTJOF NANSEN Sepiella ornata Total CGAR TYI Start stop duration TIME :33-56:30 14:26:17 30 (min) LOG : 925.07 926.62 1.86 FPDETH: 50 50 BDEPTH: 50 50 BDEPTH: 50 50 BDEPTH: 50 50 Sorted: Kg Total catch: SPECIES JE L L Y F I S H Brachydeuterus auritus Scombercmorus tritor Salistes capriscus Torpedo torpedo Alloteuthis africana Sepia officinalis hierredda Selene dorsalis Drepane africana Decapterus punctatus Sepia officinalis hierredda Selene dorsalis Drepane africana Decapterus punctatus Sardinella maderensis Sardinella maderensis	111 m Spe	CATC	kn*10 CH/HCUR: \$ OF TOT. 39.31 33.52 12.72 6.20 2.94 1.14 0.98 0.95 0.57 0.33 0.24 0.16 0.16 0.08 99.98 COJECT STAT TION:Lat Long 3 6 CH/HOUR: \$ OF TOT. 97.31 0.83 0.66 0.16 0.16 0.16 0.16 0.10 0.01 0.01	C SAMP 2927 2926 2928 ION: 654 N 258 E 944 616.58 C SAMP 2917 2929

DR. FRIDTJOF NANSEN DATE: 4/ 7/04 GEAR TY start stop duration TIME :15:45:24 16:15:14 30 (min LOS : 935.22 936.84 1.63 FDEPTH: 83 81 BDEPTH: 83 81 Towing dir: 3400 Wire out:	Purpose Area coo GearCono Validity	code: 3 le : 6 l.code: / code:		258
Sorted: Kg Total catch:		CATCH		83,44
Ariomma bondi Priacanthus arenatus Dentex angolensis Dentex congoensis Alioteuthis africana Torpedo torpedo Squatina oculata Illox coindetii Fistularia petimba Pseudupeneus prayensis Raja miraletus Deconferus punctatus	weight 60.80 5.88 4.52 4.00 2.36 1.52 1.30 1.14 0.82 0.22 0.18	996 46 48 76 10 4 2 14 12 2 8	OF TOT. C 72.87 7.05 5.42 4.79 2.83 1.82 1.56 1.37 0.98 0.26 0.22	SAMP 2933 2931 2932
Lepidotrigla cadmani Zeus faber Syacium micrurum Lepidotrigla carolae Saurida brasiliensis Blennius normani Pagellus bellottii — Total	0.16 0.16 0.06 0.04 0.02 0.02 0.02	4 10 6 6 6 2	0.19 0.19 0.07 0.05 0.02 0.02 0.02	
DATE: 4/ 7/04 GEAR TY. start stop duration TIME :17:15:26 17:40:01 25 (min LOG : 943.47 944.55 1.22 FDEPTH: 103 103 BDEPTH: 103 103 Towing dir: 345e Wire out:	Purpose Area cod GearCond Validity 300 m Spe	8 POSIT code: 3 de : 6 d.code: / code: eed: 30 km		258
Sorted: Kg Total catch:	103.00	CATCH	/HOUR: 2	47.20
Dentex congoensis Aricmsa bondi Boops boops Dentex angolensis Oxynorus centrina Epinephelus aeneus Priacanthus arenatus Decapterus punctatus juv. Illex coindetii J E L L Y F I S H Scorpaena scrofa Mustelus mustelus Sepia officinalis hierredda Squatina oculata Lepidotrigla carolae Lepidotrigla carolae Lepidotrigla carolae Lepidotrigla carolae Ichiarus linquatula Alloteuthis africana Bathygobius paganellus Saurida brasiliensis Parapenaeus longirostris Spicara sp. Syacium micrurum Starfish Sea urchins (waek spines) Uranoscopus albesca	CATCH/F weight r 75.24 32.18 15.91 13.08 9.85 8.14 9.65 8.14 7 4.32 1.80 0.65 0.58 0.58 0.58 0.43 0.36 0.36 0.29 0.29 0.29 0.29 0.14 0.07 0.07		OF TOT. C 30.44 21.50 13.02 6.44 5.29 3.98 3.90 3.29 3.18 2.21 2.01 1.75 0.73 0.26 6.23 0.17 0.15 0.12 0.12 0.12 0.09 0.06 0.03 0.03 0.03 0.03 0.03	936 2934 2935
DATE: 5/ 7/04 GEAR TYI start stop duration TIME :05:28:57 05:58:40 30 (min) LGG :1042.70 1044.14 1.42 FDEPTH: 145 135 EDEPTH: 145 135 Towing dir: 360¢ Wire out:	Purpose Area cod GearCond Validity 450 m Spe	code: 3 le : 6 l.code: code: code:		247 936
Sorted: Kg Total catch: SPECIES Arionssa bondi Dentex congoensis Illex coindetii Arionsa bondi juv. Priacanthus arenatus Synagrops microlepis Epinephelus haifensis Dentex angolensis Raja miraletus Squatina oculata Total	CATCH/H weight n	IOUR %	OF TOT. C 92.89 2.48 1.23 0.84 0.78 0.45 0.045 0.001	SAMP 2937 2938 2937

DR. FRIDTJOF NANSEN DATE: 57 7/04 GEAR start stop duration TIME :07:37:22 08:07:05 30 (r	PROJECT: IG	PRO	JECT STATION	N: 658
start stop duration	1		Long E	942
	nin) Purpose c	ode: 3		
FDEPTH: 78 79	Area code GearCond.	code:		
DDEFIN: 10 /9	Validity	code:		
Towing dir: 10¢ Wire ou	it: 230 m Spee	d: 30 kr	1*10	
Sorted: Kg Total cate	h: 12.97	CATCH	HOUR: 2	25.94
SPECIES	armen die	· m . o	OF TOT. C	01140
	weight nu		OF TOT. C	SAMP
Sepia officinalis hierredda	12.74	116	49.11	
Saurida brasiliensis Illex coindetii	3.64	634	14.D3 13.18	
Squatina oculata	1.12	2	4.32	
Lepidotrigla cadmani	1.00	30	3.86	
Dentex congoensis Alloteuthis africana	0.68	18 234	2.62	
Torpedo torpedo	0.58	2	2.24	
Cynoglossus canariensis Raja miraletus	0.52	2	2.00	
Lepidotrigla carolae	0.40	2 18	1.54	
Priacanthus arenatus	0.26	18	1.00	
JELLYFISH Blennius normani	0.16	4	0.62	
Fistularia petimba	0.16	28 2	0.62	
Parapenaeus longirostris	0.06	10	0.23	
Physiculus huloti Serranus accraensis	0.04	2	0.15	
Cymbium sp.	0.04	2 10	0.15	
Sea urchins (waek spines)	0.02	6	0.08	
Chilomycterus sp.	0.02	2	80.0	
Total	25.94		99.99	
DR. FRIDTJOF NANSEN	PROJECT: IG	PROAT	ECT STATION	1: 659
DATE: 5/ 7/04 GEAR	TYPE: BT No: 8	POSITI	ON:Lat N	246
start stop duration TIME :09:35:57 09:40:02 4 (m	i ini Dumasa a	_3 >	Long E	950
LCG :1065.65 1065.83 0.17	Area code	ode: 3		
FDEPTH: 21 23 BDEPTH: 21 23	GearCond.	code: 9		
HDEPTH: 21 23 Towing dir: 190¢ Wire ou	Validity	code: 4	*10	
	c. IIV it speed	4, 30 KI	10	
Sorted: Kg Total cate	h: 8.53	CATCH/	HOUR: 12	7.95
Sorted: Kg Total cate				
	CATCH/HO	JR %	HOUR: 12	
Sorted: Kg Total cate	CATCH/HO	JR %	OF TOT. C	
Sorted: Kg Total catc SPECIES Lutjanus goreensis Chaetodipterus lippei	CATCH/HO weight nu 79.80 24.00	JR % mbers 45 60	OF TOT. C 62.37 18.76	
Sorted: Kg Total cate SPECIES Lutjanus goreensis Chaetodipterus lippei Illex coindetii	CATCH/HO weight nur 79.80 24.00 12.90	JR % mbers 45 60 255	OF TOT. C 62.37 18.76 10.08	
Sorted: Kg Total cate SPECIES Lutjanus goreensis Chaetodipterus lippei Illex coindetii Priacanthus arenatus	CATCH/HO weight nu 79.80 24.00	UR % mbers 45 60 255 255	OF TOT. C 62.37 18.76 10.08 2.58	
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Sorted: Kg Total cate SPECIES Lutjanus goreensis Chaetodipterus lippei Illex coindetii Priacanthus arenatus Decapterus punctatus juv. Lethrinus atlanticus Alloteuthis africana Saurida brasiliensis Bodianus speciosus Serranus accraensis Decapterus punctatus Synagrops microlepis Total DR. FRIDTJOF NANSEN DATE: 5/ 7/04 Start stop duration TIME: 11:20:41 11:50:24 30 (m LGG: 1076:83 1078:40 1.57 FDEPTH: 21 25 BOEPTH: 21 25 BOEPTH: 21 25 Sorted: Kg Total cate SPECIES Lutjanus goreensis Lutjanus goreensis Lutjanus fulgems Scomberomorus tritor Alectis alexandrinus Lethrinus atlanticus Fistularia petimba Sepia officinalis hierredda Sphyraena guachancho Selar crumenophthalmus Lagocephalus laevigatus Chaetodipterus goreensis	CATCH/HOU Weight num 79.80 24.00 12.90 3.30 2.55 1.65 1.35 0.75 0.60 0.45 0.15 127.95 PROJECT:IG TYPE: BT No: 8 in) Purpose of Area code GearCond.c Validity of t: 110 m Speec h: 67.02 CATCH/HOU Weight num 44.60 42.20 7.34 2.56 2.26 1.94 1.86 1.60 1.32 1.08	PROJ POSITI Ode: 3 15 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	OF TOT. C 62.37 18.76 10.08 2.58 1.99 1.29 1.06 0.59 0.47 0.35 0.35 0.12 100.01 ECT STATION ON:Lat N Long E *10 HOUR: 13 OF TOT. C 33.27 31.48 18.65 5.48 1.91 1.69 1.45 1.39 1.19 0.98 0.81 0.75	: 660 237 946 SAMP 2940 2939
Sorted: Kg Total cate SPECIES Lutjanus goreensis Chaetodipterus lippei Illex coindetii Priacanthus arenatus Decapterus punctatus juv. Lethrinus atlanticus Alloteuthis africana Saurida brasilionsis Bodianus speciosus Serranus accraensis Decapterus punctatus Synagrops microlepis Total DR. FRIDTNOF NANSEN DATE: 5/ 7/04 GEAR start stop duration TIME: 11:20:41 11:50:24 30 (mr. LGG: 1076.83 1078.40 1.57 FDEPTH: 21 25 EDEPTH: 25 EDEPTH: 25 EDEPTH: 25 EDEPTH: 25 EDEPTH: 25 EDEP	CATCH/HOWEIGHT NUM 79.80 24.00 12.90 3.30 2.55 1.65 1.35 0.75 0.60 0.49 0.45 0.15 127.95 PROJECT:IG TYPE: BT No: 8 sin) Purpose of Area code GearCond.c. Validity of t: 110 m Speech h: 67.02 CATCH/HOWEIGHT Num 44.60 42.20 25.00 7.34 2.56 2.26 1.94 1.86 1.60 1.32 1.08 1.00 0.56	DR % abers 45 600 255 255 135 15 150 210 15 15 210 20 21 20 20 20 20 20 20 20 20 20 20 20 20 20	OF TOT. C 62.37 18.76 10.08 2.58 1.99 1.29 1.06 0.59 0.47 0.35 0.12 100.01 ECT STATION ON:Lat N Long E *10 *10 *10 OF TOT. C 33.27 31.48 18.65 1.91 1.69 1.45 1.39 1.19 0.98 0.81 0.75 0.42	: 660 237 946 SAMP 2940 2939
Sorted: Kg Total cate SPECIES Lutjanus goreensis Chaetodipterus lippei Illex coindetii Priacanthus arenatus Decapterus punctatus juv. Lethrinus atlanticus Alloteuthis africana Saurida brasiliensis Bodianus speciosus Serranus accraensis Decapterus punctatus Synagrops microlepis Total DR. FRIDTJOF NANSEN DATE: 5/ 7/04 Start stop duration TIME: 11:20:41 11:50:24 30 (m LGG: 1076:83 1078:40 1.57 FDEPTH: 21 25 BOEPTH: 21 25 BOEPTH: 21 25 Sorted: Kg Total cate SPECIES Lutjanus goreensis Lutjanus goreensis Lutjanus fulgems Scomberomorus tritor Alectis alexandrinus Lethrinus atlanticus Fistularia petimba Sepia officinalis hierredda Sphyraena guachancho Selar crumenophthalmus Lagocephalus laevigatus Chaetodipterus goreensis	CATCH/HOU Weight num 79.80 24.00 12.90 3.30 2.55 1.65 1.35 0.75 0.60 0.45 0.15 127.95 PROJECT:IG TYPE: BT No: 8 in) Purpose of Area code GearCond.c Validity of t: 110 m Speec h: 67.02 CATCH/HOU Weight num 44.60 42.20 7.34 2.56 2.26 1.94 1.86 1.60 1.32 1.08	PROJ POSITI Ode: 3 15 16 17 15 17 15 17 15 17 17 17 17 17 17 17 17 17 17 17 17 17	OF TOT. C 62.37 18.76 10.08 2.58 1.99 1.29 1.06 0.59 0.47 0.35 0.35 0.12 100.01 ECT STATION ON:Lat N Long E *10 HOUR: 13 OF TOT. C 33.27 31.48 18.65 5.48 1.91 1.69 1.45 1.39 1.19 0.98 0.81 0.75	: 660 237 946 SAMP 2940 2939

134.04

```
DR. FRIDTJOF NANSEN

DATE: 6/ 7/04

start stop duration

TIME :03:50.10 04:20:09 30 (min) Purpose code: 3

LOG :1189.75 1191.33 1.57 Area code : 6

FDEPTH: 221 219 GearCond.code:

BDEPTH: 221 219 Validity code:

Towing dir: 350 Wire out: 619 m Speed: 31 kn*10
                                                                                  PROJECT:IG PROJECT STATICN: 661
GEAR TYPE: BT No: 8 POSITION:Lat N 236
Long E 932
                                                                  Total catch: 15.43 CATCH/HOUR: 30.86
  SPECIES
                                                                                                               CATCH/HOUR
                                                                                                                                                  % OF TOT. C SAMP
Paronchelius stauchi
Squalus acanthias
Synagrops microlepis
Illex coindecti
Parapenaeus longirostris
Peristedion cataphractum
Lepidotrigla cadmani
Promethichthys prometheus
Dentex angolensis
Erythrocles monodi
Uranoscopus albesca
Merluccius polli
Pterothrissus belloci
Physiculus huloti
Zenopsis conchifer
Chlorophthalmus atlanticus
Microchirus wittei
                                                                                                        weight
9.34
5.42
5.12
4.24
1.86
1.74
0.78
0.62
0.42
0.28
0.26
0.22
0.18
0.14
                                                                                                                               numbers
2490
                                                                                                                                                                 30.27
17.56
16.59
13.74
6.03
5.64
2.53
                                                                                                                                         560
72
466
54
8
                                                                                                                                                                    2.01
1.36
0.91
0.84
0.71
0.58
                                                                                                                                                                     0.45
                                                                                                                                                                    0.45
                                                                                                               0.06
                                                                                                                                                                    0.19
                                                                                                                                                                    0.13
 Total
                                                                                                            30.86
                                                                                                                                                                 99.99
             DR. FRIDTJOF NANSEN
                                                                                                     PROJECT: IG
                                                                                                                                               PROJECT STATION: 662
                                                                                GEAR TYPE: BT No: 8 POSITION:Lat N 237
iration Long E 935
           DRT: 67-704 GEAR TYPE: BT No: 8 PSGINGN: L
start stop duration
TIME: 050:26:55 05:56:03 29 (min) Purpose code: 3
LOG :1196.73 1198.17 1.44 Area code : 6
FDEPTH: 104 107 GearCond.code:
BDEPTH: 104 107 Validity code:
Towing dir: 200 Wire out: 300 m Speed: 30 kn*10
                Sorted: Kg
                                                            Total catch: 117.01 CATCH/HOUR: 242.09
                                                                                                             CATCH/HOUR
light numbers
82.79 4804
13.47 310
12.23 161
10.74 186
 SPECIES
                                                                                                        CATCH
weight
182.79
13.47
12.23
10.74
5.98
4.66
4.03
 Ariomma bondi
Dentex congoensis
Sepia officinalis hierredda
Illex coindetii
Squatina oculata
Peristedion cataphractum
Dentex angolensis
Pterothrissus belloci
Priacanthus arenatus
                                                                                                                                                                75.50
5.56
5.05
4.44
2.47
1.92
1.66
0.74
                                                                                                                                                                                        2945
                                                                                                                                            35
12
                                                                                                               1.80
1.55
1.28
                                                                                                                                                                    0.64
  Priacanthus arenatus
Lepidotrigla cadmani
                                                                                                                                           12
25
  Raja miraletus
Fistularia petimba
                                                                                                                0.91
                                                                                                                                          6
12
                                                                                                                                                                    0.33
  Zeus faber
Lepidotrigla carolae
                                                                                                               0.64
                                                                                                                                                                    0.26
 Lepidotrigia carelae
Zenopsis conchifer
Parapenaeus longirostris
Blennius normani
Citharus linguatula
Spicara alta
Antigonia capros
P O L Y C H A E T A
                                                                                                                                                                   0.13
0.07
0.05
0.05
0.05
0.05
0.05
                                                                                                                0.17
                                                                                                                0.12
                                                                                                                0.12
                                                                                                                0.12
                                                                                                                0.12
                                                                                                               0.10
                                                                                                                                                                 99.97
                                                                                                          242 07
 Total
           Sorted: Kg Total catch: 16.86 CATCH/HOUR: 34.88
                                                                                                              CATCH/HOUR
SPECIES
                                                                                                                                                   % OF TOT. C SAMP
                                                                                                       weight 13.61
                                                                                                                              numbers
Decapterus punctatus
Sepia officinalis hierredda
Illex coindetii
Dentex angolensis
Alloteuthis africana
                                                                                                                                                                 39.02
15.77
9.15
                                                                                                                                     1502
                                                                                                               5.50
3.19
                                                                                                                                           17
                                                                                                                                           41
                                                                                                                                                                   8.06
7.65
                                                                                                                                                                                        2946
                                                                                                               2.67
                                                                                                                                       1370
                                                                                                                                                                                        2947
 Dentex congoensis
Saurida brasiliensis
                                                                                                                                            41
                                                                                                                                                                    5.10
                                                                                                                                        199
2
8
Saurida brasiliemsis
Torpedo torpedo
Priacanthus arenatus
Parapenaeus longirostris
Lepidotrigla cadmanı
Pseudupeneus prayensis
Peristedion cataphractum
Uranoscopus albesca
Lepidotrigla carolae
Todaropsis eblanae
Setarches guentheri
Sphoeroides pachgaster
Blemnius normanı
Syacıum micrurum
Citharus linguatula
                                                                                                               1.24
                                                                                                                                                                    3.56
                                                                                                               1.08
                                                                                                                                                                   2.21
1.43
1.38
1.23
0.72
0.49
0.34
0.29
0.23
0.11
0.06
0.06
                                                                                                               0.50
                                                                                                                                           12
17
12
2
8
                                                                                                               0.43
                                                                                                               0.25
0.17
0.12
0.10
0.08
0.04
0.02
0.02
0.02
                                                                                                            34.88
                                                                                                                                                              100.02
```

DR. FRIDTJOF NANSEN DATE: 6/ 7/04 Start stop duratic TIME :08.49:06 09:19:02 30 0 LOG :1213.55 1215.02 1.47 FDEPTH: 43 42 BDEPTH: 43 42 TOWING dir: 1800 Wire of	min) Purpose cod Area code GearCond.co Validity co	: 6 de: de:
Sorted: Kg Total cat		CATCH/HOUR: 48.86
SPECIES Brachydeuterus auritus	CATCH/HOUR weight numb 27.30	
JELLYFISH Selene dorsalis Alloteuthis africana Alectis alexandrinus Lagocephalus laevigatus Lolligoncula mercatoris Sepia officinalis hierredda Sepiella ornata Dentex congeensis Dentex angolensis Dicologoglossa cuneata Citharus linguatula Brachydeuterus auritus Juv. Syacium micrurum Penaeus notialis Parapenaeopsis atlantica Saurida brasiliensis Selene dorsalis, juveniles Pseudupeneus prayensis	9.48 3.64 2.32 2.24 1.66 0.40	204 19.40 2949 16 7.45 2949 4 4.75 4 4.58 4 3.40 6 0.82 8 0.82 108 0.74 4 0.61 2 0.33 2 0.33 6 0.12 2 0.12 2 0.06 14 0.08 12 0.08 2 0.08 2 0.08 2 0.08
Total	48.86	99.99
DR. FRIDTIOF NANSEN DATE: 6/ 7/04 GEAR start stop duratio TIME :11:40:07 12:10:09 30 (LOG :1231.81 12:33.46 1.64 FDEPTH: 71 71 BDEPTH: 71 71 Towing dir: 10¢ Wire o	min) Purpose cod Area code GearCond.co Validity co	Long E 934 e: 3 : 6 de: de:
Sorted: 27 Kg Total cat	ch: 26.35	CATCH/HOUR: 52.70
SPECIES	CATCH/HOUR weight numb	
Decapterus punctatus Epinephelus alexandrinus * Sepia officinalis hierredda Alloteuthis africana Dentex angolensis	24.30 2 11.00 7.48	096 46.11 2952 2 20.87 32 14.19 808 3.68
Dentex congoensis Octopus vulgaris Diplodus vulgaris Pseudupeneus prayensis Raja miraletus Illex coindetii Fistularia petimba Lepidotrigla cadmani Brachydeuterus auritus Todaropsis eblanae Saurida undosquamis Peristedion cataphractum Blennius normani Total	1.38 1.08 0.82 0.76 0.58 0.16 0.12 0.12 0.10 0.08 0.02 0.02	16 3.15 2950 30 2.62 2951 2 2.05 2 0.156 2 1.44 6 1.10 2 0.30 6 0.23 2 0.23 2 0.19 14 0.15 2 0.04 2 0.04 2 0.004
start stop duration TIME :10:29:47 11:00:31 31 (r LOG :1396.96 1398.22 1.26 FDEPTH: 41 38	nin) Purpose code Area code GearCond.coo	: 8 le:
BDEPTH: 41 38 Towing dir: 24¢ Wire on	Validity cod ut: 130 m Speed;	le: 30 kn*10
Sorted: 116 Kg Total cate	ch: 109.14 (CATCH/HOUR: 211.24
SPECIES	CATCH/HOUR weight number	
Dactylopterus volitans Sepia officinalis hierredda Acanthostrascion quineensis Fistularia tabacaria Pagrus caeruleostictus Lophodiodon calori Sphoeroides spengleri Acanthostracion notacanthus Stephanolepis hispidus Fistularia petimba Xyrichtys novacula	182.52 5 7.76 6.25 4.12 4.05 3.87 1.55 0.29 0.27 0.23 0.14	
Total	211.05	99.91

```
DR. FRIDTJOF NANSEN
               Towing dir: 24¢ Wire out: 204 m Speed: 30 kn*10
                               Total catch: 45.68 CATCH/HOUR: 91.36
        Sorted: 46 Kg
                                                          CATCH/HOUR
SPECIES
                                                                            % OF TOT. C SAMP
                                                                                                                                 SPECIES
                                                     weight
25.70
19.00
                                                                  numbers
Dactylopterus volitans
                                                                                     28.13
                                                                        144
74
 Sepia officinalis hierredda
Sepia officinalis hier
Dentex congoensis
Fistularia petimba
Pagrus caeruleostictus
Decapterus macarellus
Decapterus punctatus
Priacanthus arenatus
Lophodiodon calori
Rypticus saponaceus
                                                         18.80
                                                                        320
                                                                                     20.58
                                                                                                 2954
                                                         10.40
                                                                         56
                                                                                     11.38
                                                          9.80
4.28
1.70
                                                                                                 2956
                                                                                      4.68
1.86
1.05
                                                          0.16
                                                         91.36
                                                                                   100.00
     Sorted: Kg Total catch: 22.37 CATCH/HOUR: 67.11
                                                                                                                                 SPECIES
SPECIES
                                                          CATCH/HOUR
                                                                            % OF TOT, C SAMP
                                                                                                                                 NO CATCH
                                                     weight
43.20
                                                                  numbers
Pagellus bellottii
                                                                                     64.37
                                                                                                2958
Pagellus bellottii
Alloteuthis africana
Dactylopterus volitans
Fistularia petimba
Lepidotrigla cadmani
Dentex congoensis
Echelus myrus
Zeus faber
Sepia officinalis hierredda
Pseudupeneus pravensis
                                                          6.39
                                                                       3006
                                                                                      9.52
                                                                                                                                 Total
                                                                         21
                                                          3 45
                                                                                      5.14
                                                                                      3.08
2.77
1.43
1.12
                                                          1.86
                                                          0.96
0.75
0.36
0.24
0.15
Pseudupeneus prayensis
Citharus linguatula
Lepidotrigla carolae
Ariomma bondi
                                                                                      0.22
                                                         67.11
                                          PROJECT:IG PROJECT STATION: 669
GEAR TYPE: PT No: 1 POSITION:Lat N 131
Mation Long E 713
     DR. FRIDTUCE READORS

DATE: 7/104

Start stop duration

TIME :20:57:54 21:27:04 29 (min) Purpose code: 3
LCG :1455.69 1455.39 1.69 Area code :8

FDEPTH: 20 20 GearCond.code:

RDEPTH: 81 75 Validity code:

1440 Wire out: 120 m Speed: 35 km
               : 81 75 Validity code: Towing dir: 940 Wire out: 120 m Speed: 35 kn*10
                                                                                                                                 Total
       Sorted: Kg Total catch:
                                                                  CATCH/HOUR:
SPECIES
                                                          CATCH/HOUR
                                                                            % OF TOT, C SAMP
                                                                  numbers
                                                     weight
0.00
NO CATCH
Total
     Sorted: 106 Kg Total catch: 105.88 CATCH/HOUR: 264.70
                                                                                                                                 Dentex angolensis
                                                          CATCH/HOUR
                                                                            % OF TOT. C SAMP
SPECIES
                                                      weight
239.63
                                                                  numbers
995
                                                                                     90.53
                                                                                                2960
Pagellus bellottii
                                                                                                                                 Torpedo torpedo
Spicara alta
Fistularia petimba
Pagrus caeruleostictus
                                                          8.20
6.10
                                                                         83
                                                                                      3.10
Dactylopterus volitans
Dentex congoensis
Zeus faber
Elagatis bipinnulata
                                                          4.10
                                                                                      1.55
                                                                                                2959
                                                          1.78
                                                                         40
                                                                                      0.67
                                                          1.65
                                                                                      0.62
                                                           1.50
Antigonia capros
Boops boops
Sepia officinalis hierredda
Chilomycterus spinosus mauret.
                                                          0.53
                                                                         10
                                                                                      0.20
                                                          0.53
                                                                                      0.20
                                                                                      0.14
                                                          0.33
                                                       264,73
                                                                                   100.00
                                                                                                                                 Total
```

```
PROJECT STATION: 671
      DR. FRIDTJOF NAMSEN GEAR TYPE: BT No: 8 POSITI

Start stop duration

TIME :13:05:26 13:35:16 30 (min) Purpose code: 3
LOG :1556.04 1557.46 1.41 Area code : 8
FDEPTH: 75 72 Validity code:

Towing dir: 360e Wire out: 225 m Speed: 30 km
                                                         GEAR TYPE: BT No: 8 POSITION:Lat
                                                                                                                 Lat N 126
Long E 718
                                                                                                  30 kn*10
           Sorted: 57 Kg Total catch: 57.24 CATCH/HOUR: 114.48
                                                                              CATCH/HOUR
                                                                                                        % OF TOT C SAMP
                                                                          CATCH
weight
104.30
3.62
2.58
1.50
0.76
0.56
0.48
Pagellus bellottii
Dactylopterus volitans
Sepia officinalis hierredda
Pseudupeneus prayensis
Zeus faber
Fistularia petimba
Dentex congoensis
                                                                                                                 91.11
Fistularia petimwa
Dentex congoensis
Chilomycterus antennatus
Trachinus armatus
                                                                              0.36
                                                                                                                  0.28
                                                                          114.48
                                                                                                                 99.99
                                                         PROJECT:IG PROJECT STATION: 6/2
GEAR TYPE: PT No: 7 POSITION:Lat N 23
Long E 632
              FRIDTJOF NANSEN
      Area code: 8
GearCond.code:
Validity code:
m Speed: 30 kn*10
      LOG :100...
FDEPTH: 20 zv
BDEPTH: 531
Towing dir: 240¢ Wire out:
         Sorted: Kg Total catch:
                                                                                              CATCH/HOUR.
                                                                       CATCH/HOUR % OF TOT. C SAMP weight numbers 0.00
      DR. FRIDTJOF NANSEN PROJECT:IG PROJECT STATICN: 673

DATE:10/7704 GEAR TYPE: BT No: 8 POSITION:Lat N 8 
start stop duration Long E 628

TIME :15:46:00 16:01:00 15 (min) Purpose code: 3 
LOG :1719:40 1720.20 0.80 Area code : 8 
FDEPTH: 72 74 GearCond.code: 5 
BDEPTH: 72 74 Validity code: 5 
Towing dir: 3300 Wire out: 211 m Speed: 30 kn*10
           Sorted: 9 Kg Total catch: 9.57 CATCH/HOUR: 38.28
                                                                              CATCH/HOUR
                                                                                                        % OF TOT, C SAMP
                                                                        weight numbers
19.72 144
Pagellus bellottii
                                                                                                                51.52
15.46
                                                                                                                                2963
Fistularia petimba
                                                                              5.92
                                                                                                  28
Dentex congoensis
Sepia officinalis hierredda
                                                                              5.56
                                                                                                208
                                                                                                                 14.52
                                                                                                                                2962
                                                                              3.56
                                                                                                  32
                                                                                                                  9.30
Alloteuthis africana
                                                                              2.76
                                                                                              1656
Pseudupeneus prayensis
Priacanthus arenatus
                                                                                               8
                                                                             0 08
                                                                                                                  0.21
                                                                                                           100.00
                                                                            38.28
                                                        PROJECT:IG PROJECT STATION: 6/4
GEAR TYPE: BT No: 8 POSITION:Lat N 2
Long E 635
       DR. FRIDTJOF NANSEN
       DR. FRIDTIOF NANSEN GEAR TYPE: BT No. 8 POSITION:1

Start stop duration L

TIME :05:38:12 06:08:05 30 (min) Purpose code: 3

LOC :1789.24 1790.67 1.43 Area code : 8

FDEPTH: 63 78 GearCond.code:

BDEPTH: 63 78 Validity code:

Towing dir: 2050 Wire out: 200 m Speed: 30 kn*10
           Sorted: Kg Total catch: 16.97 CATCH/HOUR:
                                                                              CATCH/HOUR
                                                                                                      % OF TOT. C SAMP
                                                                        weight
11.90
                                                                                        numbers
Fistularia petimba
                                                                                                                35.06
                                                                                                  34
Dentex congoensis
Pagellus bellottii
                                                                              6.58
                                                                                                                 19.39
                                                                              3.90
                                                                                                  48
                                                                                                                 11.49
                                                                                                                                2964
Epinephelus aeneus
Sarda sarda
                                                                              2.16
                                                                              2.10
                                                                                                                   6.19
                                                                              1.96
Priacanthus arenatus
Alloteuthis africana
                                                                              1.30
                                                                                                                   3.83
                                                                              0.92
                                                                                                434
                                                                                                                   2.71
                                                                              0.46
                                                                                                                   1.36
Sepia officinalis hierredda
Dactylopterus volitans
Chilomycterus spinosus mauret.
Saurida brasiliensis
                                                                             0.36
0.36
0.30
0.22
0.20
                                                                                                                  1.06
1.06
0.88
0.65
0.59
0.12
0.06
0.06
0.06
Saurida Drasiliensis
Citharus linguatula
Brachydeuterus auritus
Ariomma bondi
Sepia juveniles
Physiculus huloti
                                                                                                  32
10
2
                                                                             0.04
0.02
0.02
0.02
0.02
Selene dorsalis, juveniles
Blennius normani
                                                                                                               100 00
                                                                            33.94
```

PROJECT: TO

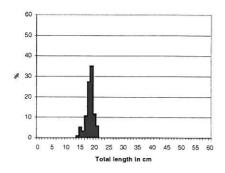
DR. F	RIDTJOF NA	NSEN		P	ROJECT	:IG	PF	COJEC	r stat	: NOI	675
DATE:	11/ 7/04		GE	AR TYP	E: BT	No: 8	POSI	TION	Lat	N	7
	start	stop	durat.	ion					Long	E	641
TIME	:07:32:32	08:02:21	30	(min)	Purp	ose co	de:	3			
LCG	:1801.27	1802.85	1.58		Area	code		8			
FDEPT:	H: 56	53			Gear	Cond.c	ode:				
BDEPT	1: 56	53			Vali	dity c	ode:				
	Towing d	ir. 250	Wire	mut.	160 m	Speed	. 30	kn+1	1		

Sorted: 102 Kg Total catch: 364.56 CATCH/HOUR: 729.12

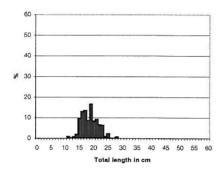
SPECIES	CATCH	I/HOUR	% OF TOT. C	SAMP
	weight	numbers		
Lutjanus fulgens	173.60	472	23.81	
Dentex canariensis	157.20	144	21.56	
Paranthias furcifer	122.00	736	16.73	
Pagrus caeruleostictus	62.32	160	8.55	2965
Pagellus bellottii	62.16	360	8.53	
Pomadasys olivaceum	23.68	224	3.25	
Fistularia petimba	20.80	72	2.85	
Selene dorsalis	16.16	32	2.22	
Apsilus fuscus	11.04	192	1.51	
Epinephelus aeneus	10.00	2	1.37	
Alloteuthis africana	9.92	5008	1.36	
Pseudupeneus prayensis	9.92	200	1.36	
Dactylopterus volitans	9.28	40	1,27	
Acanthurus monroviae	8.00	16	1.10	
Paragaleus pectoralis	7.80	2	1.07	
Sepia officinalis hierredda	7.12	18	0.98	
Seriola dumerili	5.36	8	0.74	
Acanthostracion quadricornis	4.96	16	0.68	
Torpedo sp.	3.52	8	0.48	
Aluterus monoceros	2.96	2	0.41	
Chaetodon robustus	0.80	8	0.11	
MULLIDAE	0.80	240	0.11	
Chaetodon marcellae	0.08	16	0.01	
Total	729.48		100.06	

DD DDTDWIGD WARREN		15/27		10 200		
DR. FRIDTJOF NANSEN DATE:11/ 7/04	200		MECT: IC		ROJECT STAT	
			: BT No	B POS	ITION:Lat	N 13
start stop TIME :08:20:55 10:00:52	durati		-	9	Long	E 646
LOG :1814.76 1816.13	1.37	(min)	Purpose		3	
FDEPTH: 54 53	1.37		Area co		8	
BDEPTH: 54 53				id.code:		
Towing dir: 212¢				y code:	0.000	
lowing dif: 2126	wire	out: 10	ou m Sp	need: 30	kn*10	
Sorted: 27 Kg To	tal ca	tch:	134.45	CATO	CH/HOUR:	268.90
SPECIES			CATCH	HOUR	% OF TOT.	C SAMP
		we	eight	numbers		
Pagellus bellottii			69.02	546	25.67	2967
Dentex canariensis			58.74	50	21.84	2969
Dactylopterus volitans			43.20	220	16.07	2966
Alloteuthis africana			22.54	12446	8.38	
Sepia officinalis hierredda			17.10	118	6.36	
Zeus faber			12.96	8	4.82	
Pagrus caeruleostictus			11.20	36	4.17	2968
Fistularía petimba			9.50	36	3.53	
Boops boops			9.32	946	3.47	
Epinephelus aeneus			6.90	6	2.57	
Pseudupeneus prayensis			6.10	134	2.27	
Chilomycterus spinosus maure	t .		1.06	14	0.39	
Citharlehthys stampflii			0.98	8	0.36	
Paronchelius stauchi			0.14	28	0.05	
Decapterus punctatus			0.14	14	0.05	
Total		2	68.90		100.00	
DR. FRIDTJOF NANSEN		PRO	JECT: IG	DD.	OJECT STAT	TON: 677
DATE:11/ 7/04	GEA		BT No:		TION: Lat	N 14
	durati		ы но.	0 1001	Long	E 647
TIME :13:21:13 13:21:26			Durnoss	code:		D 041
	1.05		Area co			
FDEPTH: 73 81	1.05			d.code:	0	
BDEPTH: 73 81			Validit			
Towing dir: 10ø	Wire				kn+10	
Sorted: Kg To	tal ca	tch:	19.97	CATC	H/HOUR:	59.91
SPECIES			CATCH/	HOUR	% OF TOT.	C SAMP
				numbers		
Dactylopterus volitans			18.96	93	31.65	2971
Epinephelus aeneus			17.55	3	29.29	
Alloteuthis africana			8.91	6009	14.87	
Pagellus bellottii			6.87	33	11.47	2972
Seriola carpenteri			4.77	3	7.96	
Sepia officinalis hierredda			1.71	21	2.85	
Torpedo torpedo			1.05	3	1.75	
Dentex congoensis			0.06	3	0.10	
Syacium micrurum			0.03	3	0.05	
Total		¥2	59.91		99.99	
					22.22	

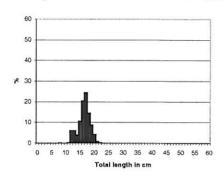
Annex II Length distribution of main species



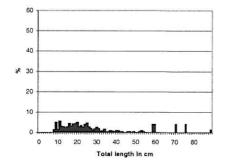




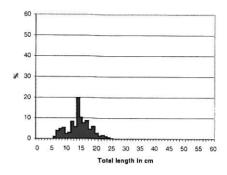
Dentex angolensis NIGERIA Mean length = 19.12 cm N = 381



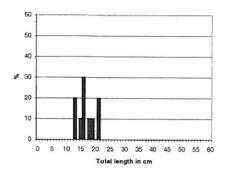
Dentex congoensis NIGERIA Mean length = 15.88 cm N = 615



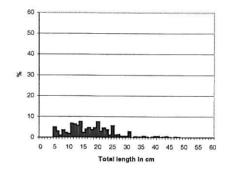
Pseudotolithus typus NIGERIA Mean length = 29.25.0 cm N = 204



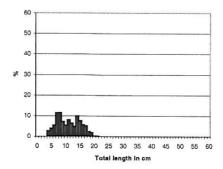
Pagellus bellottii	NIGERIA
Mean length = 14.77 cm	N = 184



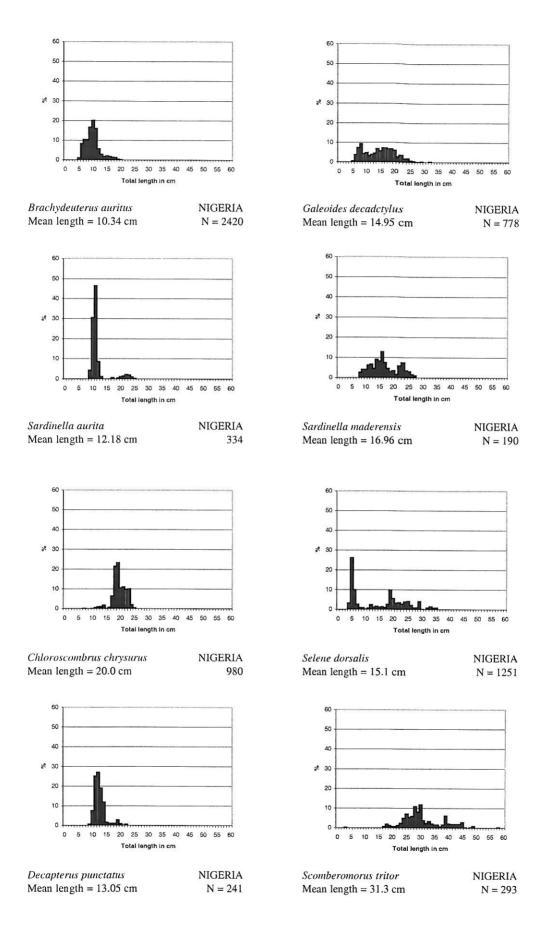
Pagrus caeruleostictusNIGERIAMean length = 17.3 cmN = 10

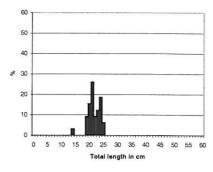


Pseudotolithus senegalensis NIGERIA Mean length = 18.03 cm N = 227



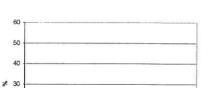
Ilisha africana Mean length = 11.53 cm NIGERIAN = 963

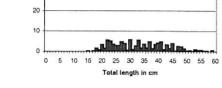




Selar crumenophthalmus Mean length = 22.0 cm

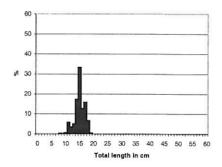
NIGERIA N = 33





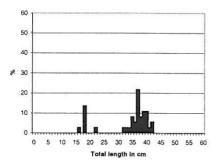
Trichiurus lepturus Mean length = 34.5 cm

NIGERIA N = 431



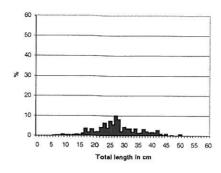
Dentex congoensis
Mean length = 15.41 cm

CAMEROON N = 245



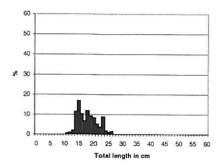
Pagrus caeruleostictus Mean length = 34.42 cm

CAMEROON N = 37



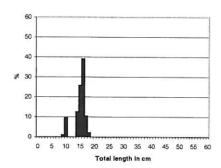
Sphyraena guachancho Mean length = 28.2 cm

NIGERIA N = 671



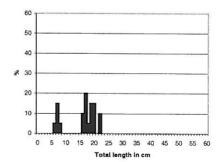
Dentex angolensis
Mean length = 15.0 cm

CAMEROON N = 177



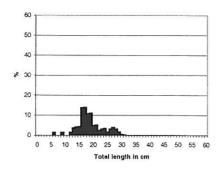
Boops boops Mean length = 15.50 cm

CAMEROON N = 105



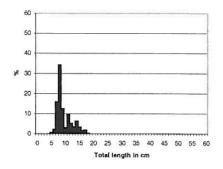
Pagellus bellottii Mean length = 16.2 cm

CAMEROON N = 20



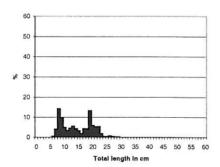
Galeoides decadactylus Mean length = 19.36 cm

CAMEROON N =197



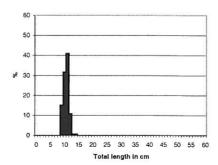
Brachydeuterus auritus Mean length = 9.58 cm

CAMEROON N = 940



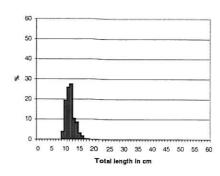
Sardinella maderensis Mean length = 12.59 cm

CAMEROON N = 492



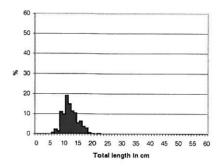
Decapterus punctatus Mean length = 11.02 cm

CAMEROON N = 139



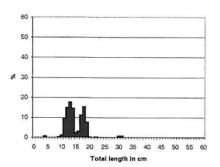
Ariomma bondi Mean length = 12.19 cm

CAMEROON N = 284



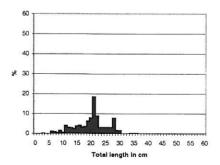
Ilisha africana Mean length = 12.72 cm

CAMEROON N = 565



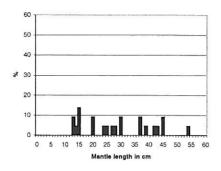
Chloroscombrus chrysurus Mean length = 15.3 mm

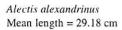
CAMEROON N = 205



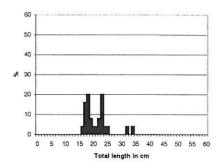
Selene dorsalis Mean length = 20.45 cm

CAMEROON N = 189



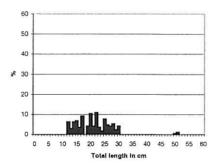


CAMEROON N = 22



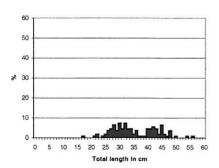
Caranx hippos Mean length = 22.46 cm

CAMEROON N = 25

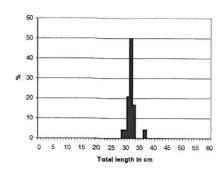


Pseudotolithus senegalensis Mean length = 21.28 cm

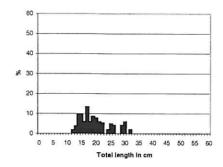
nsis CAMEROON N = 86



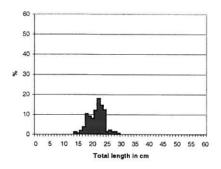
Scomberomorus tritor Mean length = 35.89cm CAMEROON N = 27



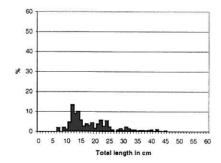
Caranx senegallus Mean length = 32.46 cm CAMEROON N = 24



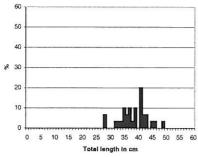
Pseudotolithus typus Mean length = 20.13 cm CAMEROON N = 56

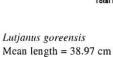


Pseudotolithus elongatus Mean length = 21.8 cm CAMEROON N = 143

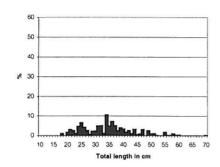


Sphyraena guachancho Mean length = 18.76 cm CAMEROON N = 354



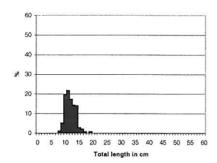






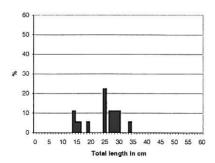
Trichiurus lepturus Mean length =34.8 cm





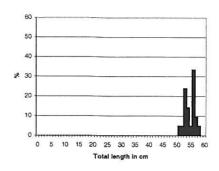
Dentex congoensis Mean length = 12.38 cm





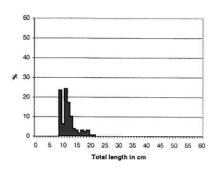
Pagrus caeruleostictus Mean length = 24.94 cm

PRINCIPE N = 18



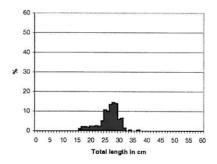
Lutjanus fulgens Mean length = 36.21 cm

CAMEROON N = 21



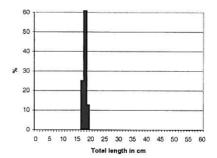
Drepane africana Mean length = 12.41 cm

CAMEROON N = 68



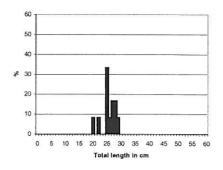
Pagellus bellottii Mean length = 26.9 cm

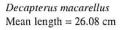
PRINCIPE N = 154



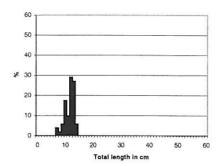
Decapterus punctatus Mean length = 16.8 cm

PRINCIPE N = 607



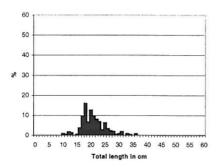


PRINCIPE N = 12



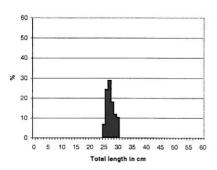
Dentex congoensis
Mean length = 12.00 cm

SAO TOME N = 52

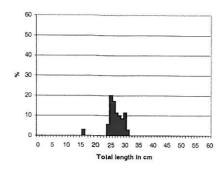


Pagellus bellottii Mean length = 19.7 cm

SAO TOME N = 147

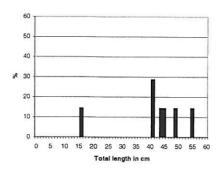


Dactylopterus volitans Mean length = 27.9 cm SAO TOME N = 61



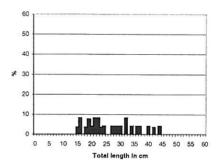
Dactylopterus volitans Mean length = 27.27 cm

PRINCIPE N = 35



Dentex canariensis
Mean length = 42.8 cm

SAO TOME N = 7



Pagrus caeruleostictus Mean length = 18.8 cm

SAO TOME N = 47

Annex III Summary of biological samples

Species	Max	Length wei	ght relat	ionship				
	Samples	Factor	Dev	Length	Length	α	β	R^2
Alectis alexandrinus	40	1.37	0.29	4.9	81	0.0328	2.70	0.98
Ariomma bondi	166	1.20	0.07	6.7	18.5	0.0100	3.08	0.97
Balistes capriscus	17	1.75	0.28	13.4	29.6	0.5208	2.85	0.97
Boops boops	16	1.08	0.04	13.5	18.8	0.0168	2.84	0.99
Brachydeuterus auritus	236	1.32	0.10	6.5	19.8	0.0114	3.06	0.97
Brotula barbata	10	0.64	0.03	24.0	48.1	0.0078	2.94	0.99
Caranx crysos	38	0.98	0.12	17.6	35.2	0.2152	2.60	0.96
Caranx hippos	10	1.19	0.04	21.0	24.8	0.0147	2.93	0.97
Caranx senegallus	10	0.76	0.04	23.0	31.3	0.0135	2.83	0.97
Chaetodipterus goreensis	7	2.64	0.16	14.1	21.7	0.0587	2.72	1.00
Chloroscombrus chrysurus	118	0.87	0.08	11.6	25	0.0066	3.12	0.97
Citharus linguatula	65	0.72	0.04	7.7	17.5	0.0091	2.91	0.97
Decapterus punctatus	53	0.82	0.04	13.4	20.8	0.0078	3.02	0.98
Dentex angolensis	105	1.41	0.12	11.8	26.5	0.0120	3.06	0.97
Dentex canariensis	35	1.52	0.15	9.9	20.5	0.0270	2.79	0.97
Dentex congoensis	179	1.39	0.10	8.6	20.4	0.0176	2.92	0.98
Drepane africana	29	2.52	0.26	11.0	25.6	0.0108	3.32	0.91
Galeoides decadactylus	202	1.01	0.06	7.0	32.7	0.0072	3.09	0.93
Hemicaranx bicolor	65	1.12	0.07	15.5	22.9	0.0187	2.49	0.94
Ilisha africana	78	0.69	0.07	5.3	19.75	0.0076	2.96	0.95
Microchirus frechkopi	16	1.15	0.07	11.1	15.2	0.0115	3.00	0.98
Pagellus bellotii	4	1.18	0.08	9.3	23.5	0.0116	3.01	0.99
Pagrus caeruleostictus	17	1.61	0.10	17.3	22.4	0.0374	2.71	0.97
Parapenaeus longirostris	152	52.16	4.08	1.1	2.87	0.6267	2.84	0.98
Pentheroscion mbizi	107	1.04	0.07	15.5	24.5	0.0085	3.07	0.97
Pomadasys jubelini	16	1.27	0.04	15.5	29.4	0.0153	2.94	0.99
Priacanthus arenatus	40	1.50	0.15	6.0	22.9	0.0287	2.83	0.96
Pseudopeneus prayensis	24	1.30	0.09	15.8	23.4	0.7527	2.42	0.97
Pseudotolithus elongatus	10	0.74	0.07	17.3	20.9	0.0099	2.90	0.87
Pseudotolithus senegalensis	112	0.83	0.10	9.3	47.8	0.0033	3.27	0.94
Pseudotolithus typus	88	0.67	0.10	9.0	70.7	0.0065	3.14	0.92
Sardinella aurita	183	0.86	0.06	16.9	27.2	0.0137	2.85	0.93
Sardinella maderensis	191	0.87	0.10	8.2	29.3	0.0145	2.80	0.94
Scomberomorus tritor	136	0.53	0.04	16.9	51.2	0.0097	2.87	0.95
Selar crumenophtalmus	49	1.17	0.07	13.7	25.8	0.0049	3.28	0.96
Selene dorsalis	192	1.13	0.11	4.2	29.6	0.0106	3.04	0.94
Serranus accraensis	16	1.15	0.11	10.7	13.7	0.0031	3.52	0.94
Sphyraena guachancho	149	0.48	0.10	4.3	55.2	0.0054	2.96	0.92
Syacium micrurum	50	0.90	0.07	6.2	10.4	0.0196	2.63	0.97
Trichiurus lepturus	120	0.06	0.01	14.9	77.5	0.0001	3.37	0.90
Total number of species	40					1000		
Total number of individuals	3151							

Table 2: Cameroun							***************************************	
Species	# Samples	Cond. Factor	St. Dev	Min Length	Max Length	Length we		tionship R ²
Albula vulpes	6	0.57	0.05	27.9	36.9	α 0.0664	β 3.04	0.95
Alectis alexandrinus	11	1.27	0.21	13.0	54.0	0.0310	2.71	0.97
Ariomma bondi	237	1.32	0.13	9.6	19.4	0.0085	3.17	0.97
Boops boops	103	1.11	0.08	9.8	18.4	0.0075	3.13	0.97
Brachydeuterus auritus	144	1.36	0.09	6.5	19.6	0.0126	3.03	0.97
Caranx senegallus	6	1.29	0.07	16.2	33.9	0.0097	3.09	0.99
Chloroscombrus chrysurus	64	0.87	0.08	11.9	22.5	0.0091	2.97	0.96
Decapterus punctatus	113	0.78	0.04	9.5	14.2	0.0811	2.95	0.97
Dentex angolensis	122	1.47	0.13	11.7	25.0	0.0190	2.91	0.97
Dentex congoensis	153	1.44	0.13	8.6	19.4	0.0136	3.04	0.97
Drepane africana	42	2.52	0.36	8.2	20.9	0.0153	3.18	0.96
Ethmalosa fimbriata	35	1.02	0.06	14.2	23.4	0.0110	2.97	0.96
Galeoides decadactylus	38	1.05	0.06	8.1	20.8	0.0081	3.00	0.96
Ilisha africana	124	0.71	0.07	4.1	20.7	0.0098	2.91	0.95
Lutjanus fulgens	21	1.51	0.07	32.3	39.1	0.0612	2.61	0.95
Lutjanus goreensis	30	1.27	0.12	33.5	50.0	0.0100	2.78	0.92
Pagellus bellottii	10	1.33	0.11	9.3	22.7	0.0086	3.23	0.97
Pagrus caeruleostictus	37	1.47	0.08	16.0	42.2	0.0168	2.96	0.98
Parapenaeopsis atlantica	40	54.11	7.50	1.2	3.1	0.6585	2.73	0.98
Penaeus monodon	11	60.39	7.61	2.5	6.8	0.9091	2.75	0.92
Penaeus notialis	11	70.03	5.30	2.9	4.1	5.7416	2.35	0.98
Pentheroscion mbizi	9	0.76	0.06	9.4	30.1	0.0061	3.08	0.96
Pseudotolithus elongatus	48	0.71	0.04	14.2	23.5	0.0041	3.19	0.97
Pseudotolithus senegalensis	20	0.61	0.07	11.6	30.4	0.0029	3.26	0.95
Pseudotolithus typus	43	0.68	0.12	11.9	32.3	0.0041	3.32	0.96
Sardinella maderensis	273	0.91	0.10	6.7	28.3	0.0238	2.84	0.95
Scomberomorus tritor	58	0.51	0.05	26.9	54.5	0.0118	2.77	0.97
Selar crumenophtalmus	8	1.06	0.06	12.7	18.8	0.0051	3.27	0.99
Selene dorsalis	83	1.15	0.12	5.5	36.9	0.0124	2.97	0.93
Sepia officinalis	29	9.71	1.10	7.9	23.0	0.1602	2.79	0.97
Sphyraena guachancho	99	0.49	0.03	8.5	44.2	0.0060	2.98	0.96
Spicara alta	26	1.24	0.14	13.3	21.5	0.0241	2.76	0.96
Trichiurus lepturus	30	0.07	0.02	30.5	59.6	0.0011	2.38	0.93
Total Number of Species	33							
Total number of individuals	2084							

Species	#	Cond.	St. Dev	Min	Max	Length we	ight relat	tionship	Remark
Species	Samples	Factor	St. Dev	Length	Length	α	β	R^2	
Dactylopterus volitans	71	0.91	0.073	23.5	35.0	0.0190	2.78	0.94	Station 676 data not used
Dentex canariensis	7	1.46	0.115	21.9	55.0	0.0167	3.22	0.93	
Dentex congoensis	68	1.38	0.099	7.2	18.9	0.0167	2.92	0.96	
Epinephelus aeneus	3	1.28	0.137	42.2	47.5	0.0167	1.37	0.99	
Pagellus bellottii	190	1.19	0.081	16.2	37.3	0.0177	2.89	0.97	Station 676 data not used
Pagrus caeruleostictus	5	1.52	0.073	14.6	42.6	0.0167	2.97	0.98	
Total No of Species	6								
Total No of Individuals	344								

Annex IV Target Species

TARGET SPECIES NIGERIA

-Dr. Fridtjof Nansen Survey 11/06 to 13/07/04

DEMERSAL SPECIES

Sciaenidae

- Pseudotolithus typus
- P. senegalensis
- P. elongatus
- P. mbizi
- P. brachvnathus
- P.moori
- P. epipercus

Cynoglossidae

- Cynoglossus. senegalensis
- C. canariensis
- C. browni
- C. cadenati
- · C. monodi

Caranigidae

- Decapterus rhonchus
- D. punctatus
- Caranx crysos
- C. hippos
- C. senegallus
- Hemicaranx. bicolor
- Alectis alexandrinus
- ciliaris
- Chloroscombrus chrysurus
- Selene dorsalis

Pomadasyidae=Haemulidae

- Pomadasys jubelini
- P. peroteti
- P. insisus
- P. rogerii

Polynemidae

- Polydactylus quadrifilis
- Pentanemus quinquarius
- Galeoides decadactylus

Sparidae

Pagellus bellottii

- Pagrus caeruleostictus
- Boops boops
- Pagrus pagrus africanus
- Dentex congoensis
- D. angolensis
- D. canariensis

Lutjanidae

- Lutjanus goreensis
- L. dentatus
- L. agennes
- L. fulgen

Serranidae

- Epinephelus aeneus
- E. goreensis
- E. guaza

Sphyraenidae

- Sphyraena guachancho
- S. afra
- S. sphyraena
- S. barracuda

Ariommatidae

- Ariomma bondi
- A. melamun

PELAGICS

Scombridae

• Scomberomorus tritor

Clupeidae

- Ilisha africana
- Sardinella maderensis
- Sardinella aurita
- Ethmalosa fimbriata

Engraulidae

• Engraulis encrasicolus

CRUSTACEAN

DECAPODA

Crabs

Portunidae

Portunus validus

Geryonidae

Geryon maritae

Shrimps

Penaeidae

- Penaeus notialis
- Parapenaeopsis atlantica
- Penaeus monodon
- Penaeus kerathurus
- Parapenaeus longirostris

MOLLUSCA

CEPHALOPODA

Sepiidae

- Sepia officinalis hierreda
- S. elegans
- Sepiella ornata

Loliginidae

Alloteuthis africana

Ommastrephidae

• Illex sp

Octopodidae

Octopus vulgaris

ZOOPLANKTON

TARGET SPECIES CAMEROON

DEMERSAL SPECIES

Sciaenidae

- Pseudotolithus typus
- P. elongatus
- P. senegalensis
- P. brachygnathus
- Sciaena umbra

Polynemidae

- Pentanemus quinquarius
- Polydactylus quadrifilis
- Galeoides decadactylus

Pomadasyidae

Brachydeuterus auritus

Drepanidae

Drepane africana

Ariidae

- Arius heudeloti
- Arius parkii

Cynoglossidae

- Cynoglossus senegalensis
- Cynoglossus monodi

Trichiuridae

Trichiurus lepturus

Soleidae

Synaptura sp.

Sphyraenidae

Sphyraena sp.

Carangidae

- Alectis alexandrinus
- Caranx hippos

Lutjanidae

• Lutjanus spp.

Congridae

Serranidae

• Epinephelus spp.

Haemulidae

Pomadasys jubelini

Sparidae

- Dentex angolensis
- Dentex congoensis
- Boops boops

Mugilidae

Mugil spp

Rays and sharks

Rajidae

- Raja miraletus
- Dasyatis magaritus

Torpedinidae

PELAGIC SPECIES

Clupeidae

- Sardinella maderensis
- Ethmalosa fimbriata
- Ilisha africana

Scombridae

Scomber japonicus

CRUSTACEA

Crabs

Xanthidae

Portunidae

Palinuridae

Lobsters

Scyllaridae

Callinidae

Penaeidae

- Parapaenopsis atlantica
- Penaeus kerathurus
- P. monodon
- P. notialis

MOLLUSCA

Gastropods

• Cymbium sp.

Cephalopods

Sepiidae

• Sepia officinalis

SEA TURTLES

Annex V Swept-area biomass estimates

SWEPT AREA ANALYSIS FROM STATION 542 TO STATION 616
Nigeria 2004

SPECIES NAME	SAMPLE DI	STRIB. wer li				% inci-	Mean dens.	Mean densi	ties by bot	tom depth s	trata t/nm²
	>0		30		300 1000		t/nm²	- 30m	30 - 50m	50-100m	100-200m
Chloroscombrus chrysurus Ariomma bondi Brachydeuterus auritus Selene dorsalis Sepia officinalis hierredd	25 19 36 35 a 48	6 9 1	1 6 4 1	1	1	42 42 67 52 74	0.97 0.74 0.56 0.54	2.74 0.20 0.29 0.01	1.50 0.74 0.25 0.09	0.40 0.85 1.24 0.56	3.68
Dentex congoensis Sphyraena guachancho Trichiurus lepturus Lepidotrigla cadmani Dentex angolensis	17 38 44 34 24	4 6 2	1 1 1	1		25 59 68 51 37	0.30 0.29 0.25 0.18 0.17	0.61	0.45	0.09 0.12 0.12 0.23 0.22	1.65 0.13 0.66 0.57
Illex coindetíi Pentheroscion mbizi Priacanthus arenatus Uranoscopus albesca Galeoides decadactylus	34 23 48 28 18	4 1 2	1			48 37 67 41 27	0.16 0.14 0.14 0.10 0.10	0.01	0.01 0.04 0.13	0.05 0.08 0.22 0.06	0.84 0.64 0.34 0.48
Ilisha africana Squatina oculata Citharus linguatula Decapterus punctatus Boops boops	19 15 47 18 4	1	1			29 22 64 26 5	0.10 0.09 0.09 0.09 0.09	0.41	0.08	0.01 0.13 0.13 0.26 0.02	0.29 0.24 0.42
Scomberomorus tritor Pseudotolithus senegalensi Saurida brasiliensis Epinephelus aeneus Pontinus accraensis	28 s 13 45 25 21	3				38 22 62 36 30	0.08 0.08 0.07 0.07	0.23 0.31 0.01	0.10 0.08 0.02 0.01	0.01 0.11 0.16 0.01	0.13 0.06 0.38
Brachydeuterus auritus Ju Portunus validus Alloteuthis africana Brotula barbata Mustelus mustelus	v. 2 36 33 27 8	2	1			5 49 45 40 12	0.07 0.07 0.06 0.06 0.05	0.10	0.15 0.16 0.01	0.06 0.01 0.17 0.02 0.08	0.01 0.30 0.14
Pseudotolithus typus Pomadasys jubelini Parapenaeus longirostris Nematopalaemon hastatus Penaeus notialis	8 11 32 2 26	1				12 16 44 3 36	0.05 0.05 0.03 0.01 0.01	0.25 0.11 0.05 0.01	0.02 0.02 0.04 0.02	0.08	0.02
Parapenaeopsis atlantica Sicyonia galeata Sicyonia sp. Penaeus monodon Penaeus kerathurus	14 13 2 7 4					19 18 3 10 5	0.01	0.03	0.01		3 0 N - 1018
PENAEIDAE Parapandalus narval Pontocaris lacazei Other fish	1 2 3					1 3 4	1.06	1.20	0.81	0.91	1.55
Sum all species							7.30	7.63	4.97	6.44	13.09
Sum Snappers Sum Groupers Sum Grunts Sum Croakers Sum Seabreams Sum Sharks Sum Rays Sum Squids Sum 0.07							0.09 0.68 0.32 0.61 0.15 0.04	0.01 0.01 0.31 0.68 0.01 0.02 0.01	0.01 0.91 0.18 0.02 0.01 0.01	0.20 0.99 0.09 0.48 0.22 0.08 0.80	0.06 0.64 2.64 0.47 0.09 1.60

73 12 25 24 12

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

SWEPT AREA ANALYSIS FROM STATION 617 TO STATION 623

Equatorial Guinea 2004

SPECIES NAME S	Lower	limit	ts, I		% inci- dence	Mean dens.	Mean densi	ties	by bot	tom depth st	rata t/nm²
	>0	10 3	30 :	100 300 1000		t/nm²	- 30m	30-	50m	50-100m	100-200m
Ariomma bondi	3	1		1	67	3.89				0.45	10.78
Decapterus punctatus	4		1		83	1.03				0.14	2.81
Boops boops	2		1		50	0.72				1.07	0.01
Dentex congoensis	4	1			83	0.53				0.16	1.26
Brachydeuterus auritus Juv		1			33	0.35				0.53	
Squatina oculata	5				83	0.29				0.16	0.56
Dentex angolensis	3				50	0.18				0.14	0.24
Sepia officinalis hierredda					83	0.13				0.11	0.18
Lepidotrigla cadmani	5				83	0.12				0.17	0.03
Epinephelus aeneus	2				33	0.12				0.01	0.35
Erythrocles monodi	1					0.10					0.30
Illex coindetii	5				67	0.09				0.05	0.18
Antigonia capros	2				33	0.09					0.26
Priacanthus arenatus	5				83	0.08				0.10	0.05
Saurida brasiliensis	4				50	0.06				0.09	
Hexanchus griseus	1				17	0.06					0.17
Raja miraletus	6				100	0.06				0.06	0.07
Sicyonia galeata	2				17					200.00-10	
Penaeus notialis	1										
Parapenaeus longirostris	1				17						
Parapandalus narval	1										
Heterocarpus ensifer	1										
Other fish						0.37				0.36	0.43
Sum all species						8.27				3.60	17.68
Sum Snappers				#I		0.12					
Sum Groupers Sum Grunts										0.01	0.35
Sum Grunts Sum Croakers					1	0.35	I			0.53	
Sum Croakers Sum Seabreams					1	0.01				0.02	
Sum Seabreams Sum Sharks					ì	0.36	1			1.41	1.51
					1	0.36				0.17	0.74
Sum Rays Sum Squids					1	0.07				0.06	0.09
Sum Squias						0.24			j	0.18	0.40
2144							I	1			

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

6

4

2

SWEPT AREA ANALYSIS FROM STATION 624 TO STATION 665

Cameroon 2004

SPECIES NAME SAM	PLE DIS	TRIB.				SSES	% inci- dence	Mean dens.	Mean densi	ties by bott	om depth st	rata t/nm²
	>0	10	30	100	300	1000		t/nm²	- 30m	30 - 50m	50-100m	100-200m
Ariomma bondi	9	2	1			1	33	4.82	0.01		0.19	46.42
Brachydeuterus auritus	23	1	2		1		69	2.22	0.21	11.76	0.07	
JELLYFISH	11	3	1	2			44	0.95	0.49	1.53	1.51	0.05
Dentex congoensis	8	1	2				28	0.38			0.12	3.31
Nematopalaemon hastatus	4	2	2			-	21	0.38	0.71	0.51		
Selene dorsalis	18		1				49	0.32	0.12	1.53	375 37 37	
Trichiurus lepturus	16	4					51	0.30	0.37	0.81		
Ilisha africana	13	3	1				44	0.28	0.52	0.36		
Illex coindetií	13	1	1				38	0.17			0.04	1.55
Sphyraena guachancho	18	2					51	0.17	0.20	0.48	0.02	-1
Chloroscombrus chrysurus	12	1	1				36	0.17	0.34	0.16		
Pseudotolithus elongatus	5	2					18	0.14	0.31	0.08		
Pseudotolithus typus	6	1					18	0.12	0.29	0,00		
Pteroscion peli	9	1					26	0.10	0.13	0.28		
Saurida brasiliensis	17	1					46	0.08	0.01	0.01	0.25	
Priacanthus arenatus	15	1					41	0.08	0.01		0.05	0.60
Sepia officinalis hierredda	20						51	0.07	0.01	0.05	0.15	0.12
Dentex angolensis	12						31	0.07	1477.7-4		0.08	0.47
Scomberomorus tritor	15						38	0.07	0.15	0.03	0.01	0.47
Galeoides decadactylus	10						26	0.07	0.17			
Portunus validus	16	***					41	0.07	0.07	0.22		
Epinephelus aeneus	15						38	0.06	0.01	0.03	0.12	0.08
Chelonia mydas		1					3	0.05	0.11	0.100	0.12	0.00
Pseudotolithus senegalensis	12						31	0.05	0.11	0.01		
Penaeus notialis	16						41	0.03	0.02	0.10	0.01	
Parapenaeus longirostris	10						26	0.02			0.05	
Parapenaeopsis atlantica	10						26	0.02	0.04		0.02	
Penaeus monodon	5						13	0.01	0.01			
Sicyonia galeata	5						13					
Penaeus kerathurus	1						3					
Other fish								0.83	0.94	0.43	0.68	2.00
Sum all species								12.10	5.36	18.38	3.37	54.60
			700		- Anti-	= 150						
Sum Snappers								0.06	0.14			
Sum Groupers								0.09	0.01	0.03	0.16	0.30
Sum Grunts								2.27	0.23	11.77	0.21	0.500.507.0
Sum Croakers								0.45	0.92	0.37		
Sum Seabreams								0.53	0.08	0.03	0.23	4.07
Sum Sharks							ŀ	0.05	0.02	100000000100	0.03	0.32
Sum Rays							ŀ	0.03	0.02	0.06	0.04	0.03
Sum Squids								0.26	0.02	0.08	0.24	1.67
Sum												
0.61							1		II.	1		

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

39 16 7 12 4

SWEPT AREA ANALYSIS FROM STATION 666 TO STATION 671
Principe 2004

SPECIES NAME S	AMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm	% inci- dence	Mean dens.		ties by bott		
	>0 10 30 100 300 1000		t/nm²	- 30m	30 - 50m	50-100m	100-200m
Pagellus bellottii	1 2	50	2.23			3.35	
Dactylopterus volitans	4 1	83	1.47	Ì	7.48	0.33	
Sepia officinalis hierredda	5	83	0.18		0.32	0.19	
Dentex congoensis		67	0.13			0.20	
Fistularia petimba	5	83	0.13		0.01	0.19	
Pagrus caeruleostictus	3	50	0.12		0.17	0.14	
Other fish			0.25		0.68	0.25	
Sum all species			4.51		8.66	4.65	
Sum all species			4.51		8.66	4.65	
			4.51		8.66	4.65	
Sum all species Sum Snappers Sum Groupers			4.51		8.66	4.65	
Sum Snappers			4.51		8.66	4.65	
Sum Snappers Sum Groupers			4.51		8.66	4.65	
Sum Snappers Sum Groupers Sum Grunts Sum Croakers			4.51		8.66	3.70	
Sum Snappers Sum Groupers Sum Grunts Sum Croakers Sum Seabreams Sum Sharks							
Sum Snappers Sum Groupers Sum Grunts Sum Croakers Sum Seabreams Sum Sharks Sum Rays			2.48				
Sum Snappers Sum Groupers Sum Grunts Sum Croakers Sum Seabreams							

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

SWEPT AREA ANALYSIS FROM STATION 672 TO STATION 677

São-Tome 2004

SPECIES NAME	SAMPLE DISTRIB. BY C Lower limits,		% inci-	Mean dens.	Mean densi	ties by bot	tom depth st	rata t/nm²
		100 300 1000	dence	t/nm²	- 30m	30- 50m	50-100m	100-200m
Dentex canariensis Lutjanus fulgens	1 1		33	1.19 0.92			1.42 1.10	
Pagellus bellottii Paranthias furcifer Dactylopterus volitans Pagrus caeruleostictus Fistularia petimba	3 2 1 3 1 1 1		83 17 50 33 67	0.91 0.64 0.41 0.40 0.27			1.09 0.77 0.50 0.48 0.32	
Alloteuthis africana Epinephelus aeneus Sepia officinalis hierredd Pomadasys olivaceum Pseudupeneus prayensis	5 4 a 5 1 3		83 50 83 17 50	0.26 0.20 0.17 0.13 0.09			0.31 0.24 0.21 0.15 0.11	
Selene dorsalis Zeus faber Dentex congoensis Boops boops Apsilus fuscus	1 1 3 1	1.00	17 50 17 17	0.09 0.08 0.07 0.06 0.06			0.10 0.10 0.08 0.07 0.07	
Other fish				0.27			0.32	
Sum all species				6.22			7.44	
Sum Snappers Sum Groupers Sum Groupers Sum Croakers Sum Seabreams Sum Sharks Sum Rays Sum Squids Sum				0.98 0.84 0.13 2.64 0.04 0.03			1.17 1.01 0.15 3.15 0.05 0.03 0.52	

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

Annex VI Estimates of sample variance

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)

$$\overline{y}_{st} = \sum_{i=1}^{L} W_i \overline{y}_i \,, \tag{1}$$

where

L is the number of strata,

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

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

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

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

or t/nmi² =
$$\frac{y_{ik}}{area\ swept_{ik}}$$
 for biomass estimates).

The estimated variance of the stratified mean, \overline{y}_{M} , is

$$\operatorname{var}(\overline{y}_{st}) = \sum_{i=1}^{L} W_i^2 \frac{s_i^2}{n_i}, \qquad (2)$$

where

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

When \overline{y}_{st} is estimated in t/nmi² then an estimate of the total biomass in the area is calculated by

$$B = \overline{y}_{st} \cdot total \ area \tag{4}$$

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

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

where s_i^2 is from equation (3).

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

$$se(\overline{y}_{st}) = \sqrt{var(\overline{y}_{st})},$$
 (6)

where $var(\overline{y}_{st})$ 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)

$$\overline{y}_{st} \pm t_{(n-1)} se(\overline{y}_{st}),$$
 (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 retransformed 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)

$$c_{i} = \frac{m_{i}}{n_{i}} \exp(\overline{x}_{i}) G_{m_{i}}(s_{x,i}^{2}/2),$$
 (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

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

The variance of c_i is given by

$$\operatorname{var}(c_{i}) = \frac{m_{i}}{n_{i}} \exp(2\overline{x}_{i}) \left\{ \frac{m_{i}}{n_{i}} G_{m_{i}}^{2} \left(s_{x,i}^{2} / 2 \right) - \frac{(m_{i} - 1)}{(n_{i} - 1)} G_{m_{i}} \left(\frac{m_{i} - 2}{m_{i} - 1} s_{x,i}^{2} \right) \right\}$$
(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)

$$\hat{\mu}_{i} = \frac{(n_{i} - m_{i})}{n_{i}} \overline{y}_{i}' + \frac{m_{i}}{n_{i}} \exp(\overline{x}_{i}) G_{m_{i}}(s_{x,i}^{2} / 2), \qquad (11)$$

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,

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

 \overline{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

$$\operatorname{var}(\hat{\mu}_{i}) = \operatorname{var}(c_{i}) + \left(\frac{n_{i} - m_{i} - 1}{n_{i}(n_{i} - 1)}\right) s_{i}^{\prime 2} + \left(\frac{m_{i}(n_{i} - m_{i})}{n_{i}^{2}(n_{i} - 1)}\right) \overline{y}_{i}^{\prime 2} - 2\left(\frac{n_{i} - m_{i}}{n_{i}(n_{i} - 1)}\right) \overline{y}_{i}^{\prime} \times c_{i}, \quad (12)$$

where

 $s_i^{\prime 2}$ 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 = $(2\overline{x}_i - x_{\text{max}})$, where \overline{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 \overline{y}_i with $\hat{\mu}_i$ for each stratum in equation (1). The standard error of $\hat{\mu}_{st}$ is obtained by substituting $\text{var}(\hat{\mu}_i)$ for s_i^2 / n_i (which equals $\text{var}(\overline{y}_i)$) in equation (2) and then

$$se(\hat{\mu}_{st}) = \sqrt{var(\hat{\mu}_{st})}$$
 (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 $\hat{\mu}_{er}$ is given by

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

Annex VI Instruments and fishing gear used

Echo sounder

The SIMRAD EK500/38 kHz scientific sounder was used during the survey for fish abundance estimation. The lowering keel was not submerged during the survey. The Bergen Echo Integrator system (BEI) was used to scrutinise the acoustic records. System calibration experiment using a standard copper sphere was performed 08.11.2003. The settings of 38 kHz echo sounder were as follows:

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

Transducer depth 5.5 m (lowering keel not submerged)

Absorption coeff. 10 dB/km

Pulse length medium (1 ms)

Bandwith wide

Max Power 2000 Watt

2-way beam angle -21.0 dB

Sv Transducer gain 26.98 dB

TS Transducer gain 27.15 dB

Angle sensitivity 21.9

3 dB beamwidth 6.8 ° alongship

6.7° athwardship

Alongship offset -0.07 °
Athwardship effect 0.07 °

Display menu

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

Printer menu

Echogram 1 (38 kHz)

Range 50 m, 100 m, 250 m, 500 m

Range start 0
Bottom range 12 m
Bottom range start 10 m
TVG 20 log R
Sy Colour min - 60 dB

Bottom detection menu

Minimum level -50 dB

Fishing gear

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

The bottom trawl has a headline of 31 m, footrope 47 m and 20 mm meshsize in the codend with an innernet of 10 mm meshsize. The estimated opening is 6 m (observed 5.7) and distance between wings during towing about 18 m. The sweeps are 40 m long. The trawl is equipped with a 12" rubber bobbins gear. The doors are of 'Thyborøn' combi type, 7.81 m², 1670 kg, their distance while trawling about 45 - 55 m in average, depending on the depth (least distance at low depths). This distance can be kept constant (about 50 m) at all depths by the use of a 9.5 m strap between the wires at 130 m distance from the doors, normally applied at depths greater than 80 m. On the present survey, however, the strap was not applied because most of the trawl hauls were made in shallower waters.

The SCANMAR system was used on all trawl hauls. This equipment consists of sensors, a hydrophone, a receiver, a display unit and a battery charger. Communication between sensors and ship is based on acoustic transmission. The doors are fitted with sensors to provide information on their distance and a height sensor is fitted to the bottom trawl to measure the trawl opening and provide information on clearance and bottom contact.

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

Annex VII Example sheet used for calculations of biomass and confidence intervals

Made 23/3 1999 by Jeppe Kolding

This example is the biomass of seabreams in Benin 2002

Equation numbers (1) and (2) refers to Appendix in report	d (2) refers to	Appendix in repc	h (kg/hour) is equ ort	n GKAFEK usinį al for for the den	Density (min. 2) is from MAN-SIS and Coefficient of variation (CV) is from GRAFEH 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	itervais at the swept a	ırea is constant per	hour
	П	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	9	0.08	1.83	0.04	0.146	0.021	0.001
31-50	134	9	0.53	1.54	60:0	0.816	0.666	0.003
51-100	244	5	2.59	1.20	0.83	3.108	099.6	0.197
Total	5561					Ve	Var(strat-mean)=	0.20
t- value =	2		Stratifie	Stratified mean =	0.96	SE	SE(strat-mean)=	0.45
		95% Confidence limits:	nce limits:	Ц				
Total biomass=	734	48	1420					