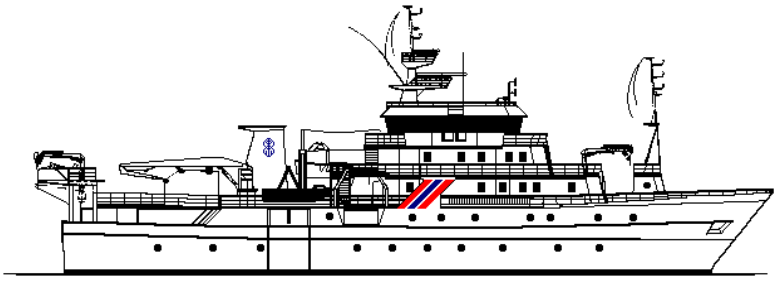

# BCLME SURVEY NO. 3 2004

## A TRANSBOUNDARY STUDY WITH EMPHASIS ON DEEP WATER HAKE IN THE LÜDERITZ - ORANGE RIVER CONE AREA

**Cruise report No 10/2004**

**28 August – 9 September 2004**

**by**

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Bergen October 2004

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# 1 Introduction

The first transboundary study in the region, carried out in the context of the BENEFIT programme, focused on the life history of *Merluccius paradoxus* in the area and was carried out on Dr. Fridtjof Nansen in February – March 2004.

First hypothesis underlines the apparent lack of juvenile and young *M. paradoxus* north of Lüderitz, a big adult population along the slope, and sexual immaturity of this adult population in Namibian waters. It is argued, that *M. paradoxus* breeds almost exclusively in South African waters and juvenile fish are later following prevailing currents and/or density structures of available prey. This leads them to the slope area of South African waters south of the Orange River (around 30$^{o}$S) where they migrate north as adult fish, following the slope along the 300 – 600 m depth range. As the slope narrows and become steeper around the plateau of the Orange Bank this has a form of a "caravan of fish" moving northwards. High catches in the hake fishery in this area supports the assumption that there is a concentration effect present in the area. Further northwards the channel opens to a wide area, the habitat of sub-adult and adult stock of *M. paradoxus* in Namibia. If this stock does not return to South Africa to spawn it can be subject to a stronger fishing pressure, as it does not contribute to recruitment.

Second hypothesis postulates that *M. paradoxus* may spawn as far north as Panther Head (around 28$^{o}$S) but the main source of the juveniles are still south of the Orange River. However at certain times of the year or at certain environmental conditions the shelf between Orange River and Lüderitz opens as a channel for juvenile fish to migrate northwards. This explains that juveniles and young fish were observed on Orange Banks and over the slope in the Jan-Feb survey. The deepwater hake then enters Namibia in a young stage and most of its growth to adulthood takes part in Namibia.

In the period 19 April to 2 May a BCLME survey was carried out between Lüderitz and Orange River to map the resources and oceanographic features in what was considered to be a critical area for the migration of deep-water hake between South Africa and Namibia. The results from the survey showed changes in distribution of fish, which was linked to a seasonal change in the watermasses influencing the area.

The aim of the survey here reported is to check for further seasonal change in the distribution of fish and in the oceanographic features associated with a late winter regime in

the special study area. The work carried out is thus to a large extent a replication of the field work in April-May.

## 2 Materials and methods

### 2.1 Registration of weather conditions

The underway weather data aboard Dr. Fridtjof Nansen are logged with the Aanderaa Weather Station unit fitted with the following sensors:

| Sensor type | Measurement units |
|---|---|
| Air temperature | Degrees °C |
| Wind speed | M/s |
| Solar radiation | $W/m^2$ |
| Wind direction | Degrees re. the magnetic N. Pole |
| Sea surface temperature | Degrees °C |

All sensors but sea surface temperature (SST) are mounted on a mast positioned midships, at about 20 meters above the sea level. The SST sensor is located at the intake of the water for cooling the engine and its readings are representative to a water layer at about 5 meters below the sea level.

### 2.2 Hydrography

The data on temperature salinity and oxygen were collected with a CTD *Seabird 9 plus* probe between the surface and 10 meters off the bottom. CTDs were made at each trawl station and, additionally, in the course of the special study conducted in the shelf break area off Panther Head on 3 March. The CTD probe was fitted with a set of newly factory-calibrated sensors, installed on 17 December 2003. In addition, water bottle samples for oxygen and salinity calibrations were taken at almost all CTD stations.

The salinity samples were analysed with the Guildline Portasal salinometer unit. The laboratory conditions onboard are suitable to detect deviations between the CTD and *in situ* samples at a level of 0.005 of salinity units. Since no deviations reaching or exceeding this

range were detected, the salinity values based on the factory calibration of the conductivity sensor are used throughout this report.

The samples for dissolved oxygen were titrated within 12 hours of sample collection, using the standard Winkler method.

## 2.3 Acoustic measurements

### *2.3.1 Acoustic equipment*

The acoustic recordings were conducted using Simrad EK 500 echosounder coupled to a keel-mounted transducer of 38 kHz. Acoustic raw-data was logged on the Sun-Unix based Bergen Echo Integrator (BEI) version 2000. The technical specifications and operational settings of the echosounders used during the survey are given in Annex 2 together with the results from the last calibration of the system. The acoustic data were scrutinized using the post-processing module of the BEI software.

### *2.3.2 Classification*

Scatterers were displayed at 38 kHz, standardized to 5 nautical miles (NM) echograms with 1,000 pings (horizontal) by 500 bins (vertical). The mean 5 NM area backscattering coefficients $s_A$ ($m^2/NM^2$) was allocated to a predefined set of species or species groups on the basis established echogram features. When concentrations of juvenile pelagic hake were encountered the $s_A$-values were stored with a 1 NM resolution.

Acoustic groups used were: a) Juvenile pelagic hake <17 cm, b) older hake, usually demersal, c) horse mackerel, d) Pelagic group1 (pilchard, anchovies, red eye), e) Pelagic group 2 (pelagic fish not of Pelagic 1), f) demersal fish, not hake, g) mesopelagic fish, h) plankton. The classification was based on the characteristics of the echo traces, experience accumulated from previous similar surveys in Namibia since 1990 and in South Africa since 2000, supported when possible with results from nearby bottom trawl stations. Time constraints did not permit pelagic trawling on targets.

The results from the acoustic system are considered as a pilot study with the main aim of delineating the limits of distribution of juvenile pelagic hake and some information on relative densities. The figures will not be converted to biomass, as the target strength is uncertain and as the classification scheme and methods are too course for such a purpose. Adult hake were very rarely observed in the acoustic channel during daytime, while it showed up frequently above bottom at nighttime.

## 2.4 Trawl sampling procedures

The standard bottom trawl of Dr. Fridtjof Nansen, a Gisund Super shrimp cum fish trawl, was used in the survey and for the intercalibration. A description of the trawl and gear is given in Annex 3. Dr. Fridtjof Nansen use a 20 m strapping on the warps 105 m in front of the doors to keep the door and wingspread constant at 50 m and 21 m respective, independent of trawl depth.

A standard haul was 30 minutes at 3 knots, sometimes reduced to 20 minutes in areas of expected high densities. The exact time for start and stop of the trawl operation was determined by SCANMAR sensors. The output from the SCANMAR system was also recorded on files to facilitate later analysis of bottom contact and door-spread if necessary.

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, based on GPS readings. In the survey a nominal distance of 18.5 m was applied to facilitate analysis with previous surveys. The area swept for each haul was thus 18.5 m times the distance trawled, converted to NM². The catchability coefficient (q), i.e. the fraction of the fish encountered by the trawl that was actually caught, was conservatively assumed equal to 1, to allow comparison with previous results.

### *2.4.1 Handling the catch*

In most cases, the whole trawl catch was sorted and all species were recorded with their weight and numbers. For especially big catches the abundant species were sub-sampled while the other fish were sorted out. Length measurements (total length) were taken for target species. The length of each fish was recorded to the nearest 1 cm below. The mantle length of squid was measured to the nearest 1 cm below.

Small juveniles of two hake species are normally differentiated on the basis of the vertebral count: 50-53 for *Merluccius capensis*, and 54-56 for *M. paradoxus*. This method has been criticized on the grounds that vertebrae formation could be strongly temperature-dependent. To check the accuracy of our identifications, genetic identification was carried out on individuals, on which vertebrate count was available. This was done for a small sample and a large-scale experiment is planned later. The 12S rRNA mtDNA gene was sequenced for a total of 41 *Merluccius* individuals. One adult *M. paradoxus* and two adult *M. capensis* were included as controls.

- 29 of the juvenile specimens preliminary classified as *M. paradoxus* (based on morphology) had an identical sequence to the control specimen.
- 8 of the juvenile specimens preliminary classified as *M. capensis* (based on morphology) had an identical sequence to the control specimens while the remaining one individual differed by a single site change from this.
- Collectively the genetic data strongly support the differentiation of the juveniles based on morphological criteria.

An electronic measuring board was used for length measurement, main sample weights were recorded by Scanvaegt electronic balances and a Marel weight was used for single fish and small species measurements.

### *2.4.2 Biological samples*

Biological samples were collected for the two hake species in special areas. The following information were collected: Sex, maturity stage, gonad weight and stomach content. The maturity scale used was the one adopted at Marine and Coastal Management, Cape Town:
1: immature, 2: active, 3: ripe, 4: ripe and running, 5: spent and 6: inactive

## 3 Narrative

The scientific staff consisted of:

From MCM, South Africa:

Marek R. LIPINSKI, A. BUTLER, Tebello MAINOANE, Rebecca RADEMEYER, Keshni GOBAL, and Theofelus KAIRUA

From NatMIRC, Namibia: Paul KAINGE, Suama ASSER, Johnny GAMATHAM, Mathew SHIKONGO and Josef WEDEINGE

From IMR, Norway:

Tore STRØMME, Marek OSTROWSKI, Oddgeir ALVHEIM, Tore MØRK and Jan Frode WILHELMSEN

The cruise tracks with fishing and hydrographical stations are shown in Figure 1.

The vessel departed Walvis Bay in the evening of 28 August, steaming southwards to the study area. Sampling work started on the night to the 30th at the northernmost transect (between Panther Head and Lüderitz). During the following days the vessel worked alternately on the shelf and the slope covering the shelf with four monitoring transects and the slope area between 300 and 600 m with stations in the same positions as during the previous survey. 1½ days extra effort was made on the NE part of the Orange Banks in order to map the fish in this area more accurately. A new attempt was made to rescue the current meter rig launched in March on the slope off Orange Bank. The acoustic release was still responding to trigger signals but the rig would not surface. As assumed in May, most probably have the floats been ripped off by trawling activities in the area. Half a day of sampling was lost due to bad weather on 6 September, which caused three planned stations on the most southern part of the slope to be cancelled. Arrival Cape Town was on 9 September. Except for one day with rough sea the weather conditions were favourable during the survey.

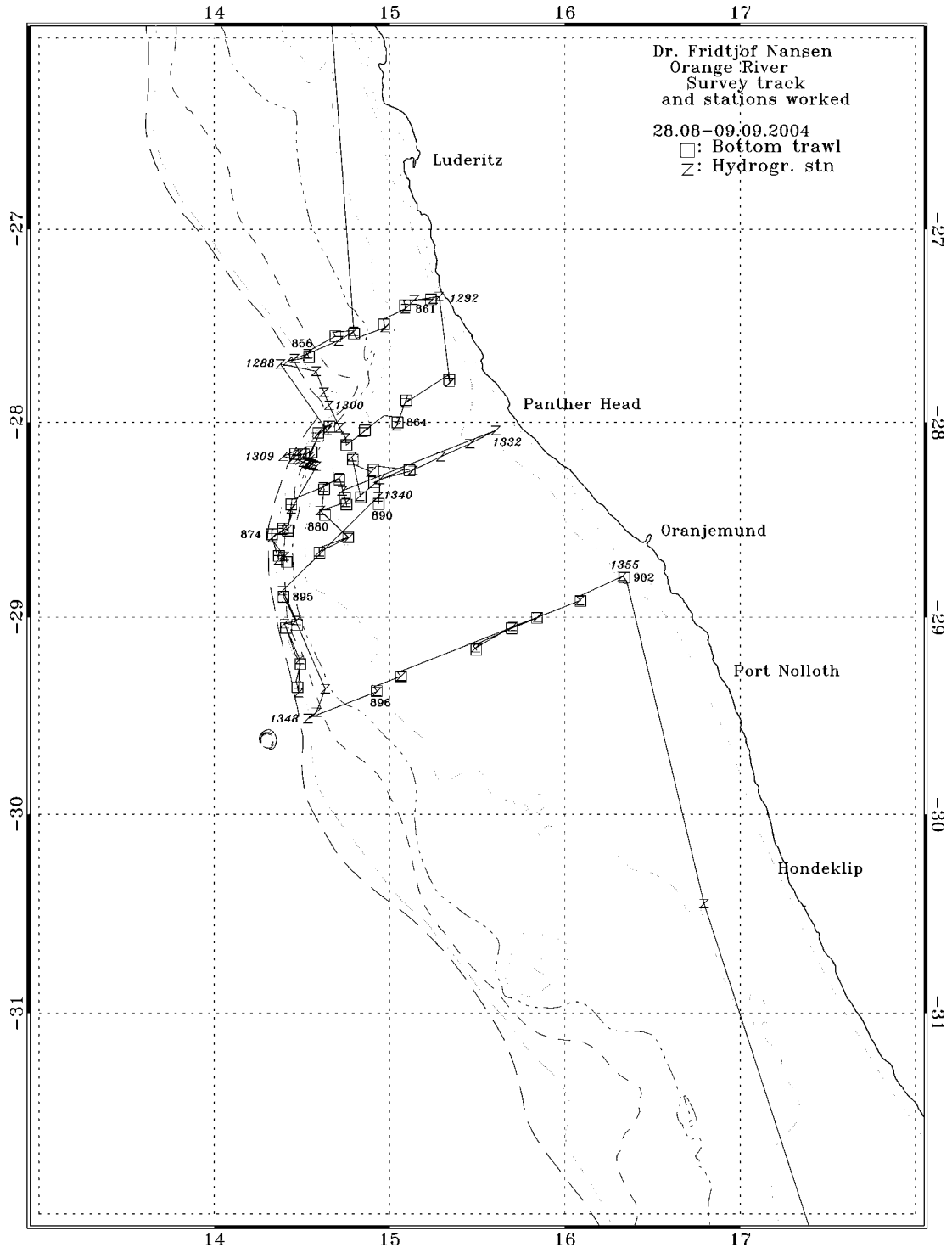



**Figure 1** Course track and fishing and hydrographic stations

# 4 Results

## 4.1 Hydrography

The aim of the oceanographic observations during the current survey was to detect the seasonal change in the northern area of the Orange Banks in winter. The results reported here supplement the earlier studies for summer and autumn, reported in Strømme et al. (2004). As in the previous cases, in this report we focus on the two hydrographic lines occupied in the northern section of the Orange banks (Figure 2).

The survey occupied a total of 73 hydrographic stations, along three principal CTD lines. These crossed the shelf seawards of the Orange River Delta (28°47'S), Panther Head (28°02'S) and at the latitude 27°21'S, respectively (Figure 1). The distances and timing of the stations were by and large dictated by the fishing operations. The distances between the stations across sharp bathymetric gradients were at some locations too large to properly resolve the scales of the fast changing hydrographic variability. In order to understand the pathways of the deep-water masses into the Orange Banks, an additional high-resolution hydrographic line was carried out across the shelf-break in the northwestern corner of the Orange Banks. This line was occupied during all three BCLME surveys in 2004. Its position is depicted in Figure 2 (Stations 1209-1218).

### *4.1.1 Variability on the outer shelf*

In the first report (Strømme et al. 2004), we have reported the change in the dominant subsurface water mass from High Salinity Central Water (HSCW) in March to Low Salinity Central Water (LSCW) in April. The match between the TS diagrams for April and August (Figure 3) indicates that no further change occurred between April and August. LSCW remained dominant water mass on the outer shelf during the winter. The only difference was at the surface. The surface waters in winter were colder and saltier than in autumn – an obvious effect of the decreased solar radiation and reduced discharge by coastal rivers.

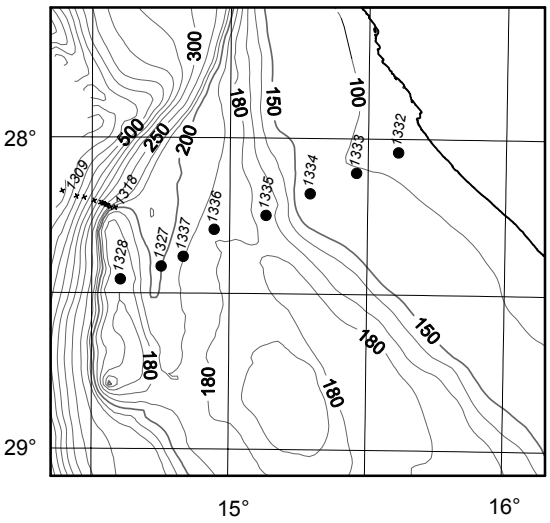



**Figure 2** Distribution of CTD stations along the principal hydrographic lines overlaid on the bathymetry of the northern Orange Banks.

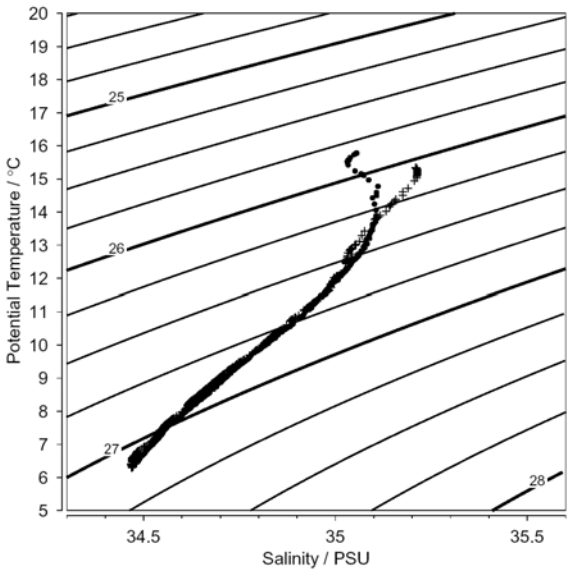



**Figure 3** T-S diagram for stations 537 and 1310 at a position 28°11.67'S, 014°28.35'E occupied during April and August, respectively. The closed cycles describe data from station 537 (April); these described by the plus signs pertain to sta. 1310 (August).

### *4.1.2 Variability on the Orange Banks*

The distribution of seawater properties along the high-resolution section (Stations 1309-1318 is depicted in Figure 4). The vertical structure of the water column from the surface to a depth of 200 m (the characteristic depth at the shelf-break of the Orange Banks) is essentially the same across all sections. Thus, the subsurface upwelling over the shelf

break, which had been observed at this location in April (Strømme et al. 2004) during August was absent. Off the bank, below the 200 m depth, however, the isopycnals displayed a downward tilt towards the shelf edge (Figure 4d). This may be considered as an indication of the poleward current flowing along the continental slope. A similar density distribution pattern was pronounced in March but was absent during April.

Distribution of seawater properties across the Orange Banks shelf is depicted in Figure 9. The figure covers Stations 1328-1332 (Figure 3). The characteristic ranges on the temperature salinity and density distribution remain, with the exception of the surface waters, the same as these observed in March and April. Only the near-bottom oxygen distribution displays a higher range of values than these observed in April: 3.0-3.5 versus 2.5-3.0 ml/l. The most profound difference between winter and other seasons was found in the position of the dense Orange Banks bottom water ($\sigma_\theta$ > 26.85 kg/m$^3$) across the section. During August this water mass was found in a depression centered at about 15 NM from the offshore end of the section. In March and April, it was observed some 30 NM towards inshore. Such an offshore shift towards the northward sloping bottom depression (Figure 2) and its absence further inshore may indicate that, unlike in March and April, the bottom water in this area was sourced from the Lüderitz shelf in the north, rather than from the Hondeklip upwelling in the south.

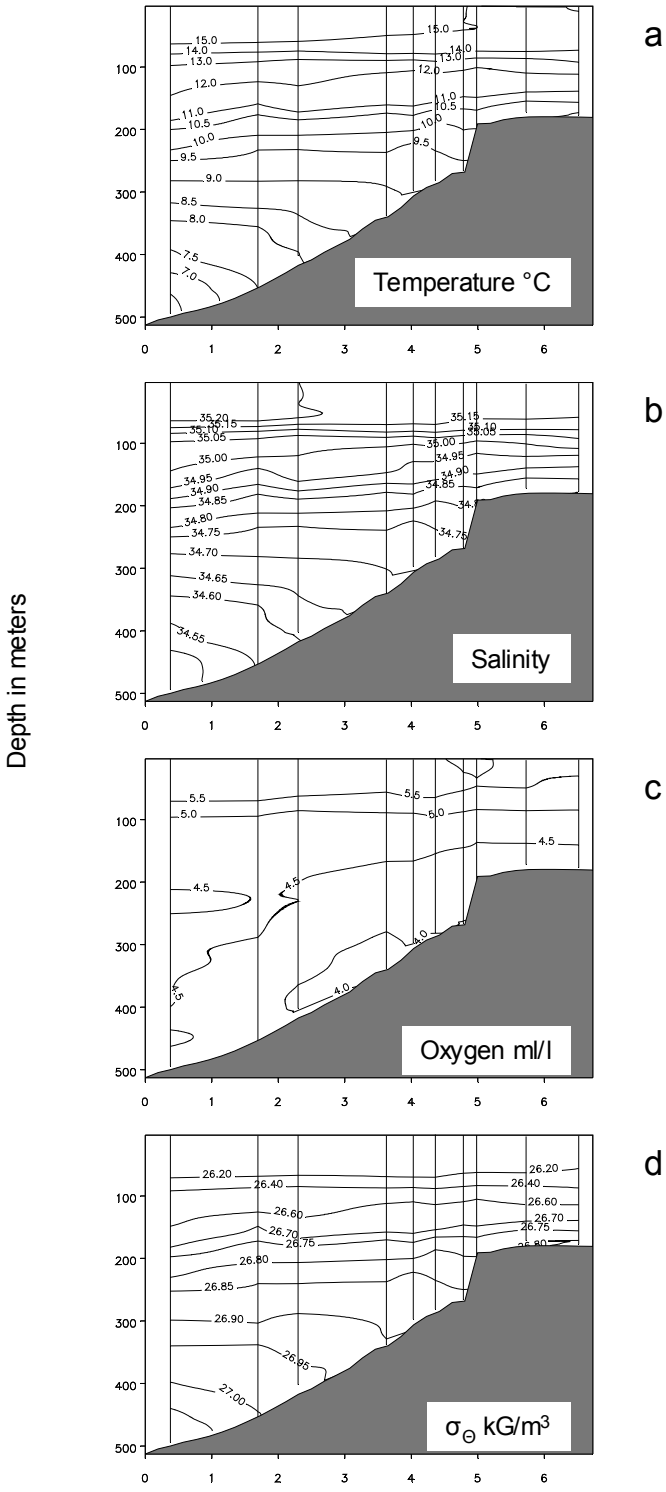



**Figure 4** Distribution of seawater properties off the northern tip of the Orange Banks. The locations of stations correspond to stations 1309-1318 in Figure 2.

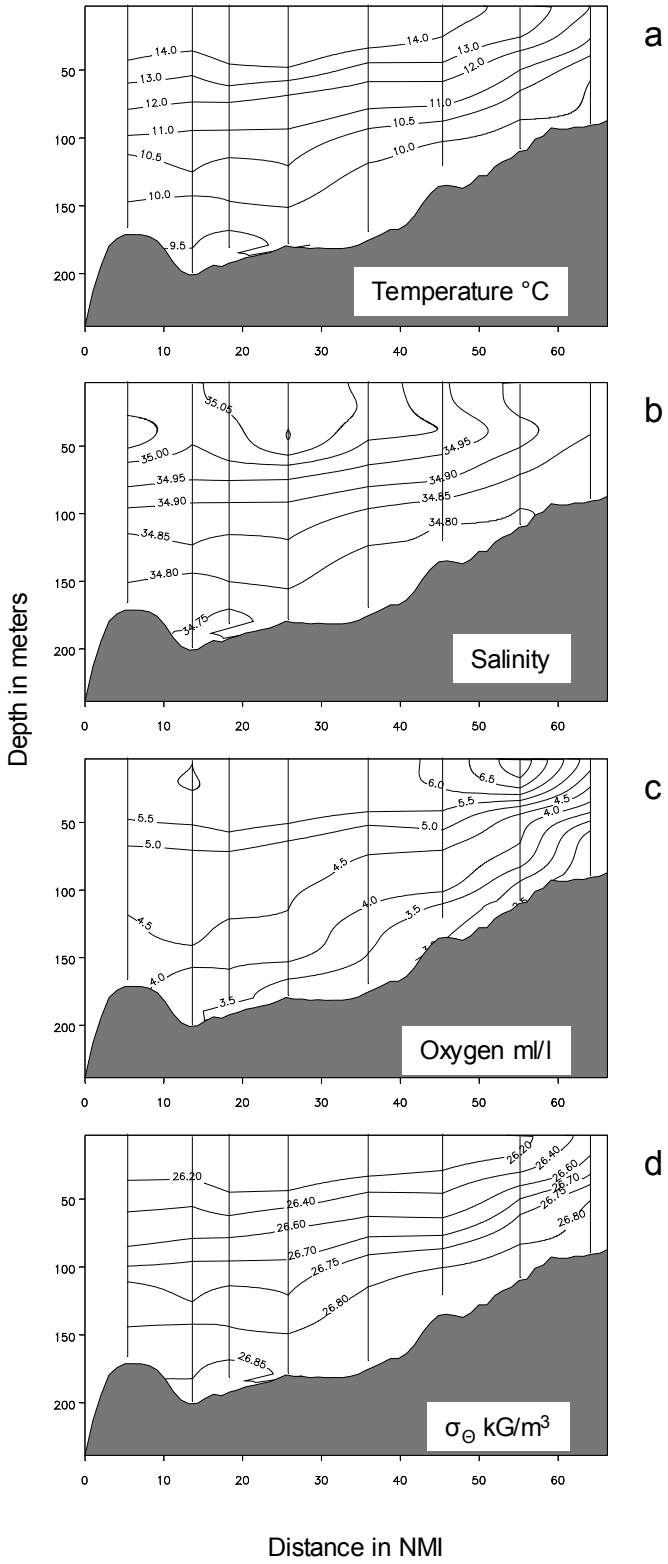



**Figure 5** Distribution of seawater properties on the Orange Banks. The locations of stations correspond to stations 1328-1332 in Figure 2.

## 4.2 Biology

Annex 1 shows the complete record of the fishing stations and Annex 2 shows in table form the catch rates of the two hake species grouped by juveniles (<21 cm) and bigger fish.

Figures 6a-y show the distribution of the *M. paradoxus* within the study area, sorted by 5 cm classes until 35 cm and in one accumulated group beyond 35 cm. For comparison the corresponding figures for the February and April surveys are included. For the smallest fish, 6-10 and 11-15 cm, (Figures 6a-c and d-f respectively), the densities are lower and the northern expansion less pronounced when compared to the two previous surveys. The fish has also a more offshore distribution and seems to avoid the plateau in the vicinity of Panther Head. Also the 16-20 and 21-25 cm groups, (Figure 6g-i and j-l respectively), have mostly left the inner part of the shelf off Panther Head and are concentrated close to the shelf break. This is even more prominent in the 26-30 and 31-35 cm classes as illustrated on Figure 11m-o and p-r where most of the fish is concentrated in the 300-500 m bottom depth zone. The adult fish, (Figure 6v-y) are with a few exceptions fully established beyond 300 m bottom depth. In general the distribution pattern for the adult fish is quite similar during the three surveys, perhaps with a more southern distribution in the latest survey.

Figures 7a-k highlights the density pattern in the 300-600 m bottom depth zone from Lüderitz to Orange River. These figures show the cumulative mean density, expressed in number per NM² in 5 cm classes of hake, ordered by latitude from north to south. For comparison similar cumulative curves for the two previous surveys are added to the plots. In this analysis we seek to overlook contributions from single stations that more demonstrate outliers than patterns. The 21-25 cm group, (Figure 7a), is in general present in this zone with relative low numbers, except for one sample off Lüderitz in the February survey. Low densities are also demonstrated for the 26-30 cm class for the first two surveys, but in September there is an increased density contributed mainly by samples between 28 and 29° S. This is also apparent for the size classes 31-35 and 36-40 cm, (Figures 7c,d respectively).

Also for the 41-45 cm group, (Figure 7e), there is an increased density south of 28°30'S and for the two last surveys. For the bigger size classes the pattern seems to be more uniform perhaps with slightly higher densities in April compared to the previous and following survey. The southern part seems to hold higher densities of big fish compared to the northern part. As a sum up for Figure 7 it seems that the fish in the 30-40 cm range enters the slope 300-600 m between May and August and that the highest densities between 28°30' and 29°S suggest that they could enter the slope in this area. For the bigger fish there is generally higher densities in the south compared to the north.

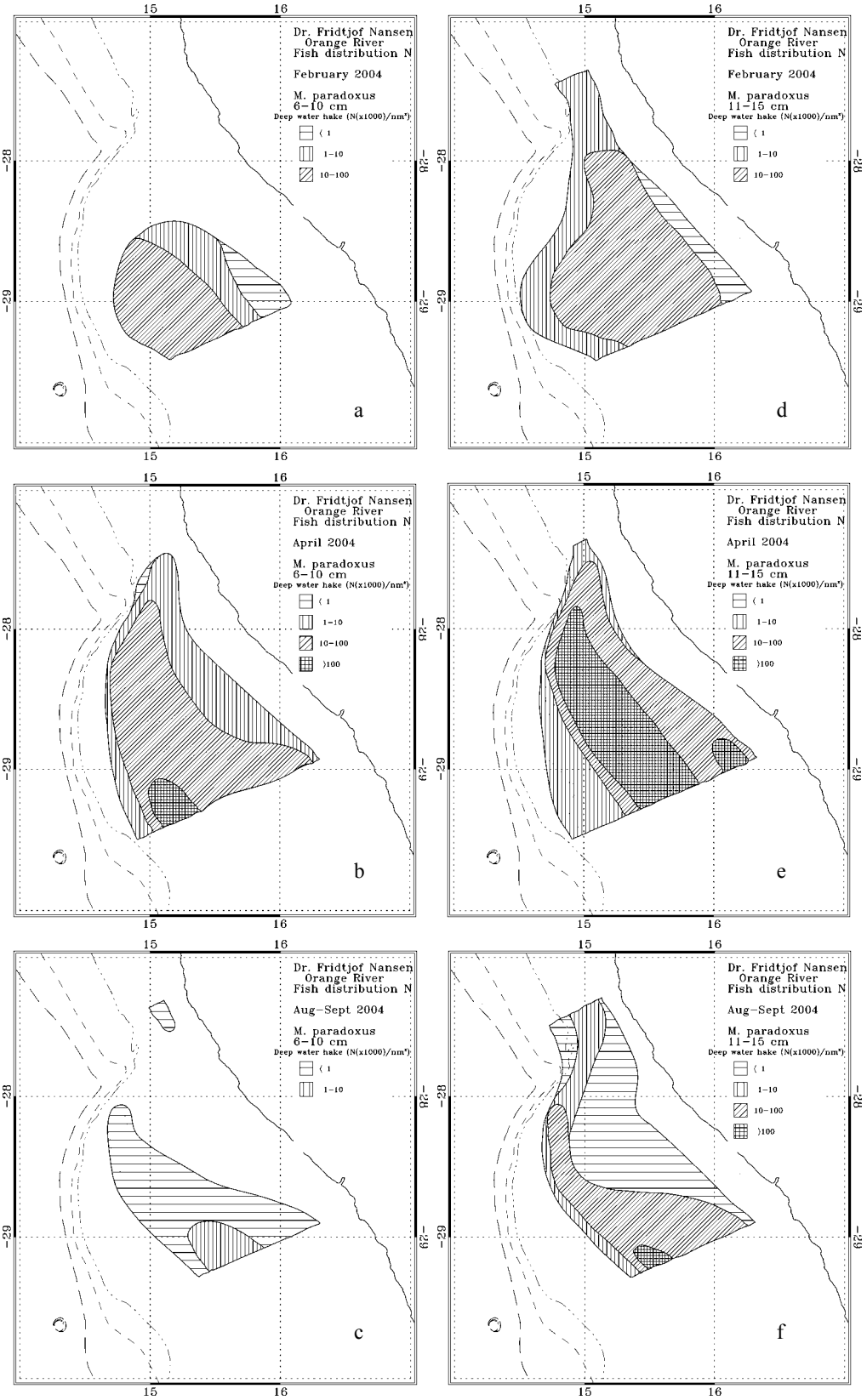



**Figure 6** Distribuion of *M. paradoxus* by 5 cm classes. Upper: February 2004, central: April 2004 and bottom: August-September 2004.

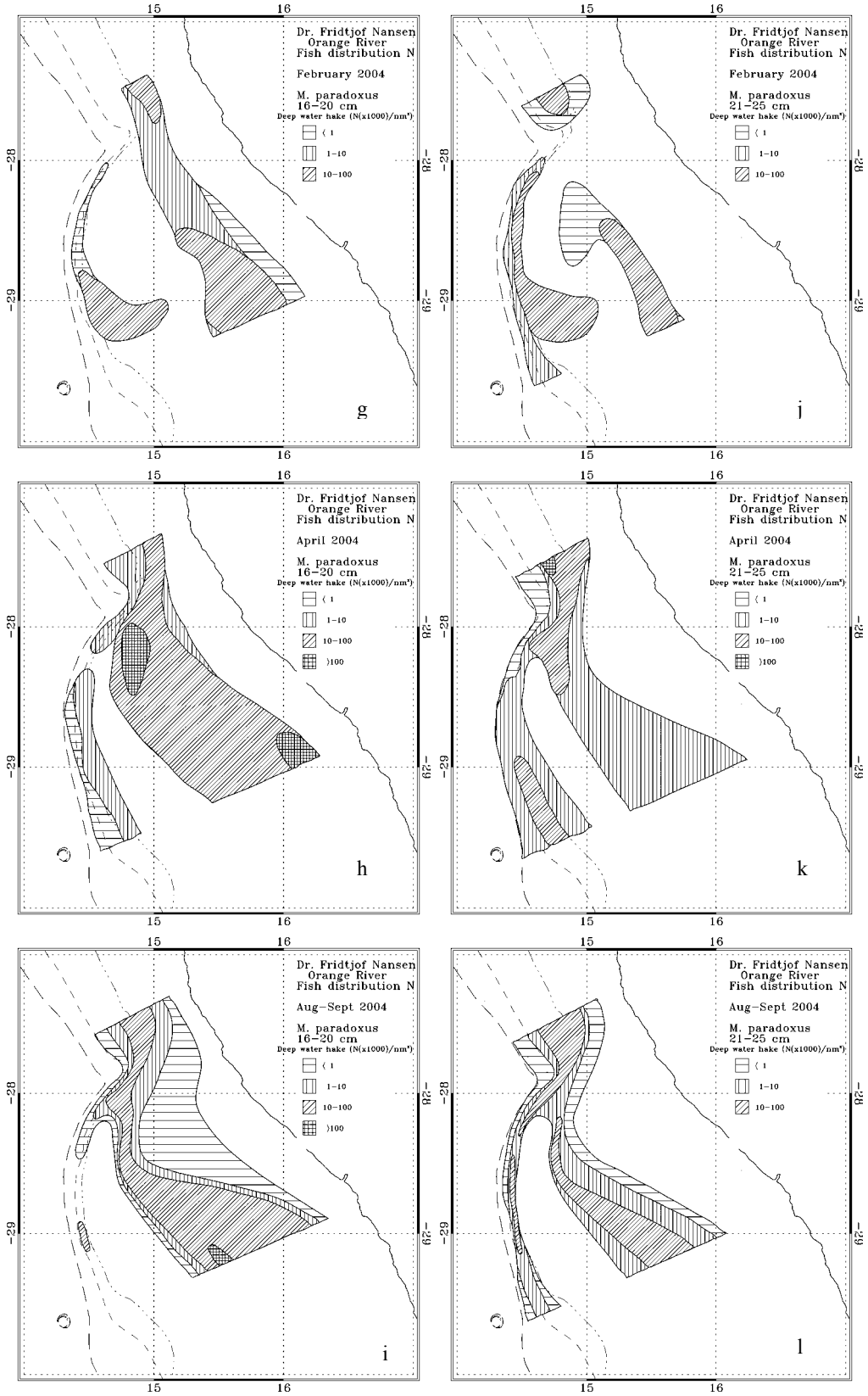
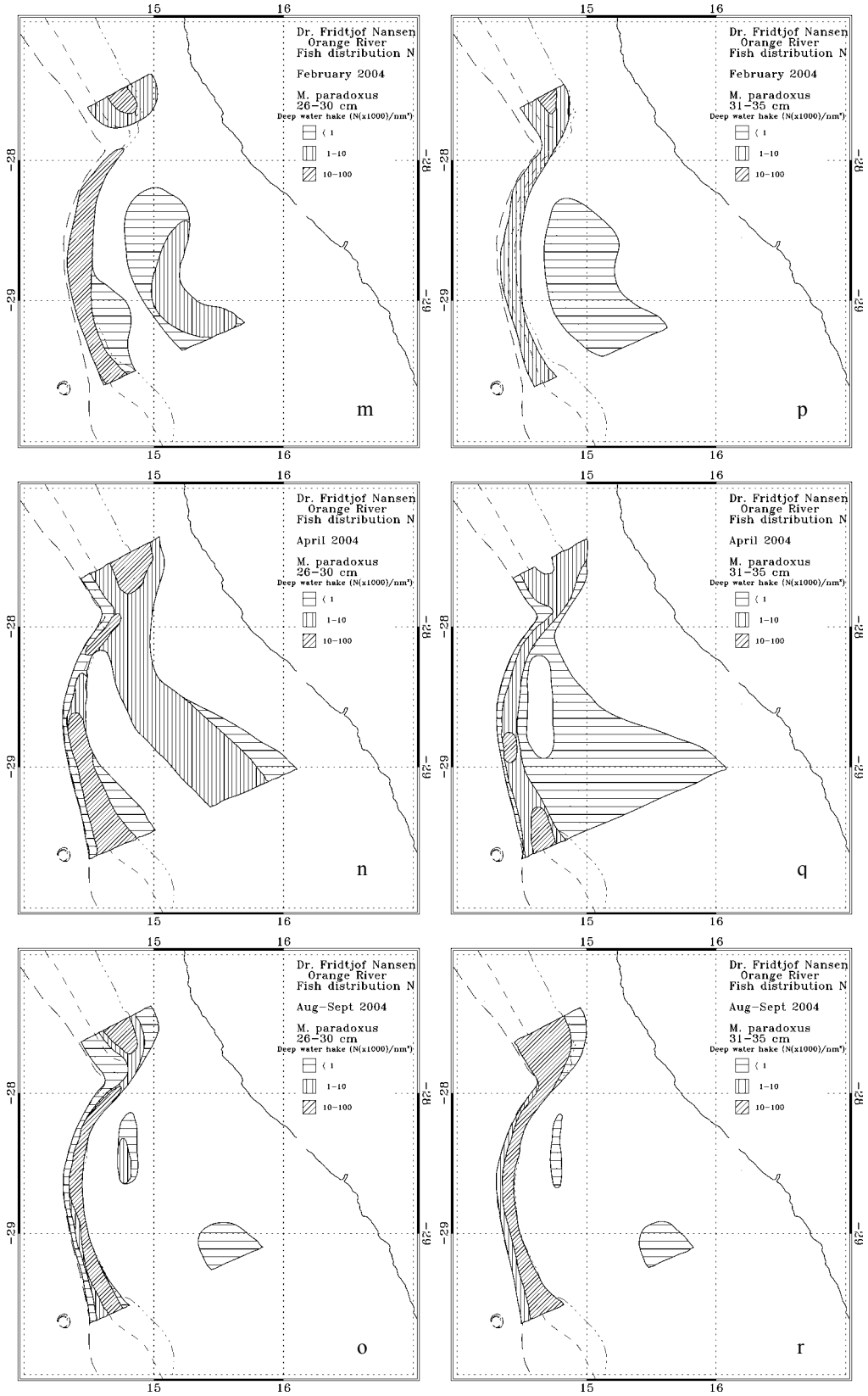



**Figure 6** continued

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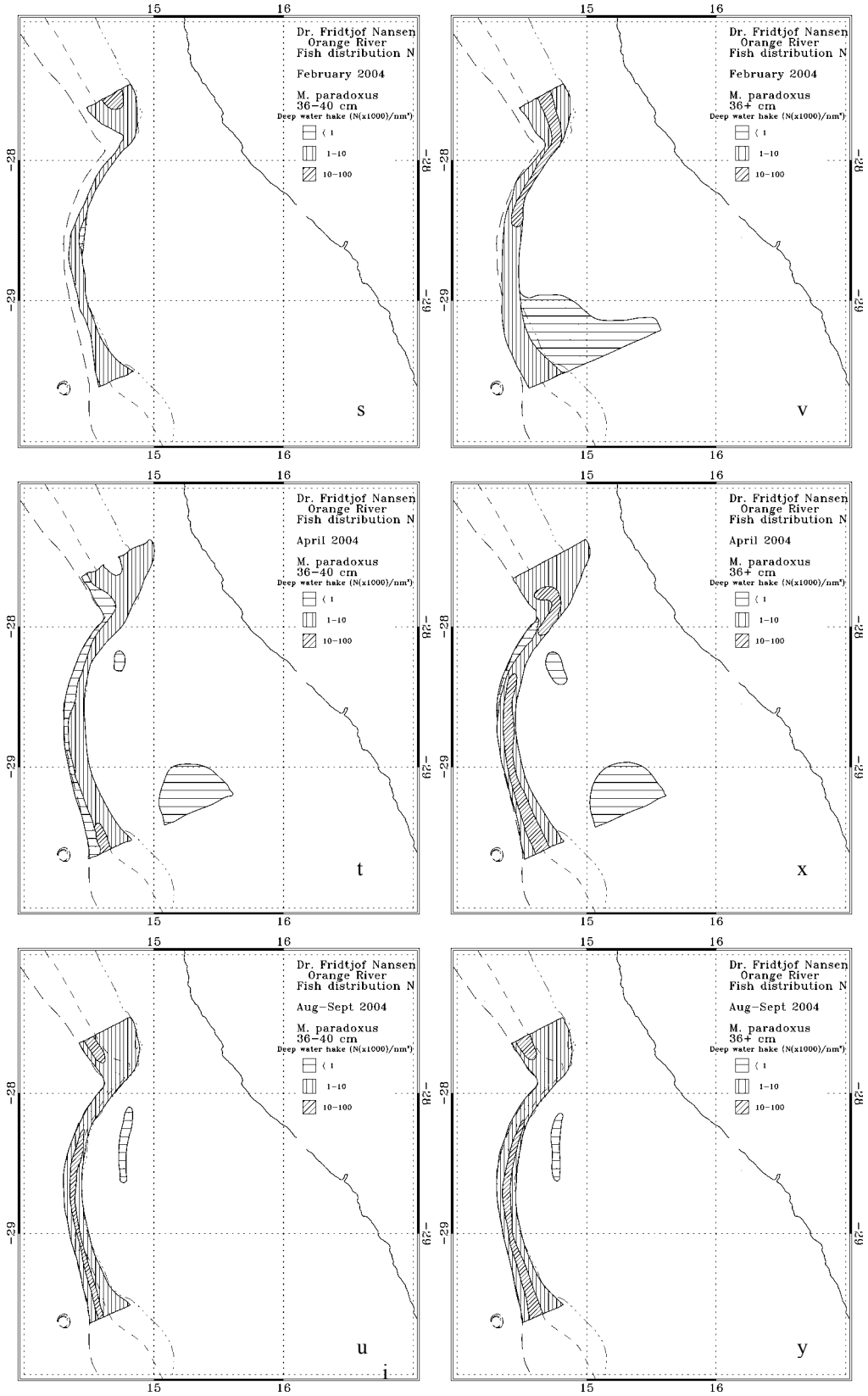


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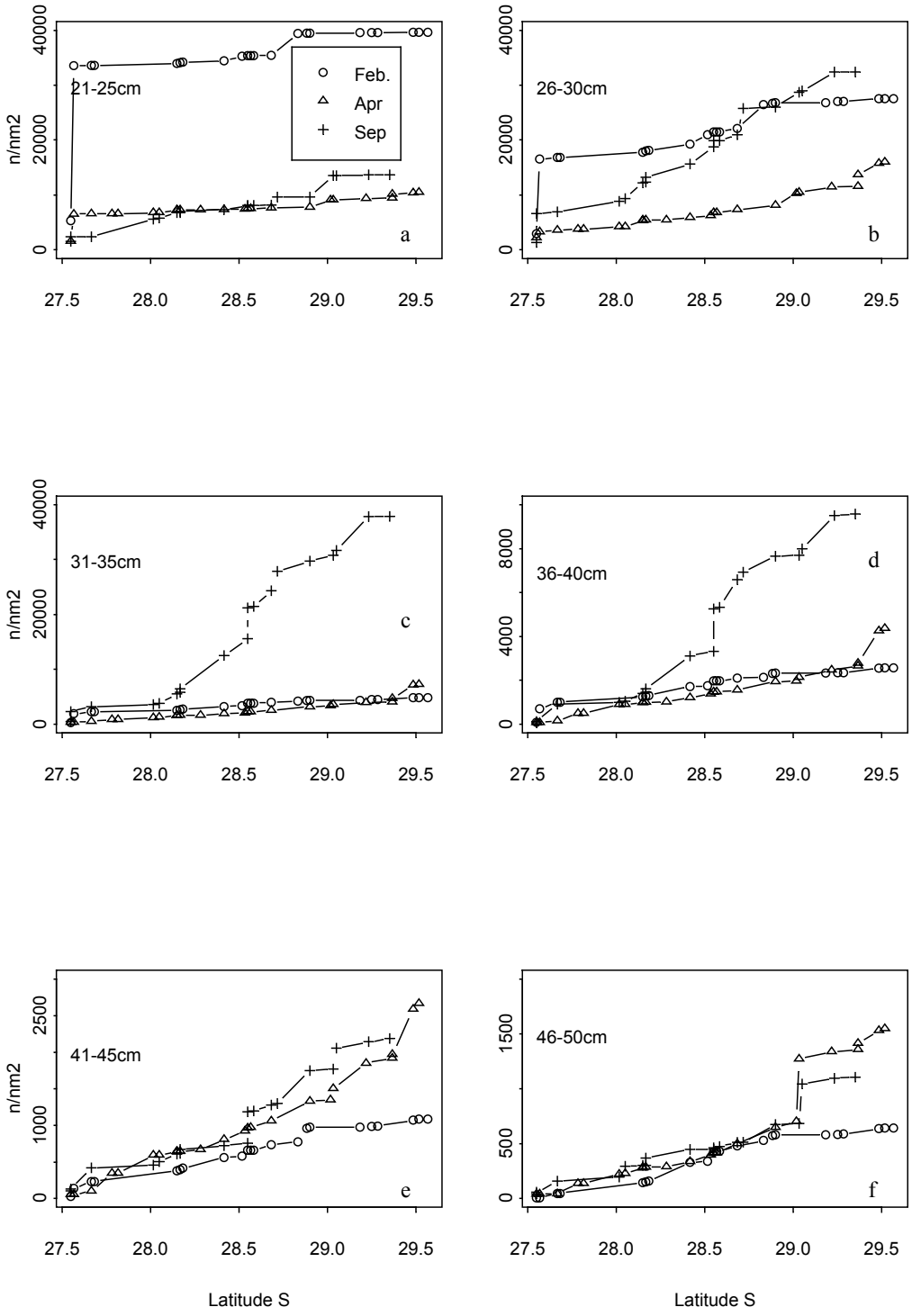


**Figure 7** Cumulative mean density (numbers/$NM^2$) in the bottom stratum 200-600 m, ordered by latitude.

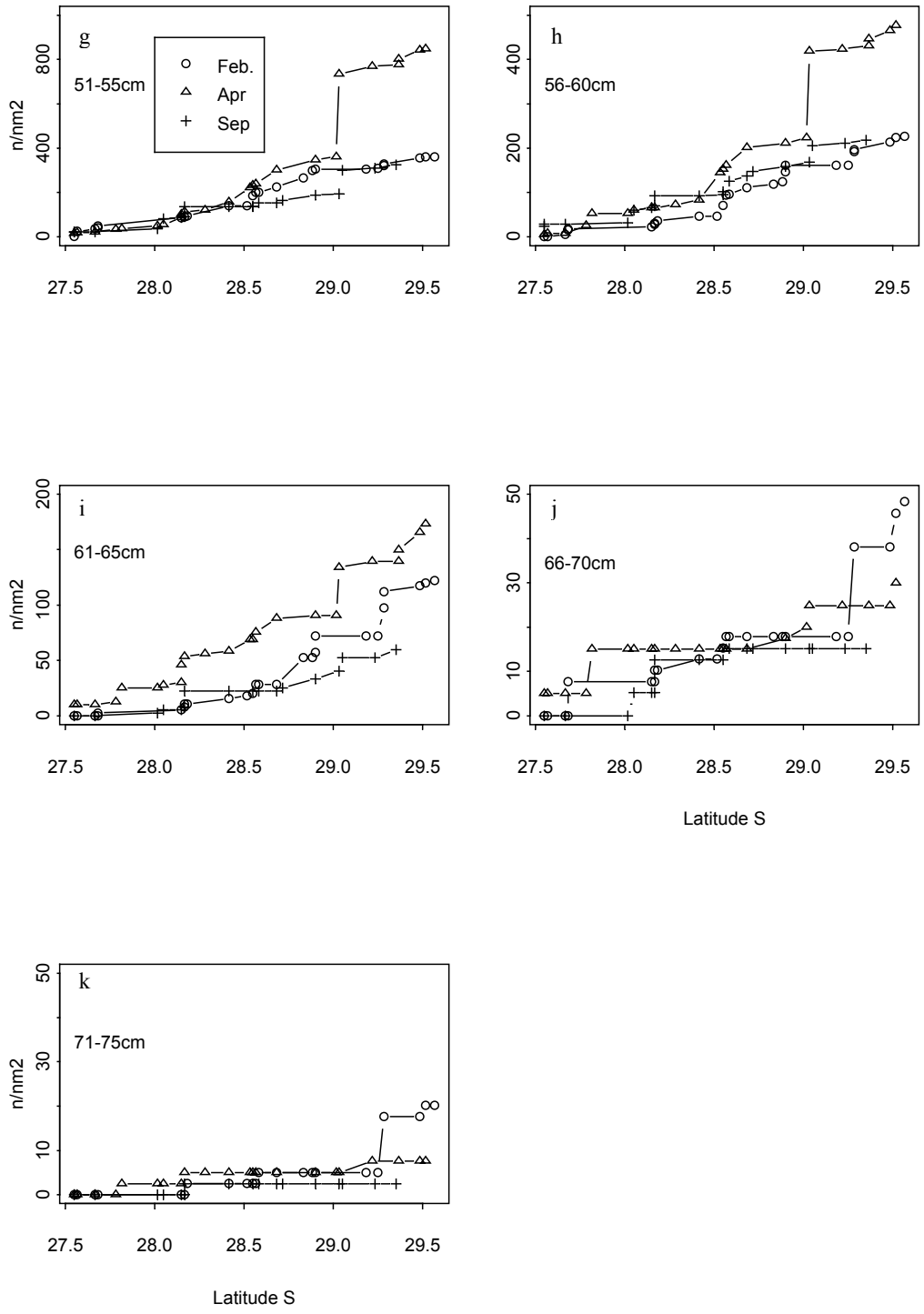


**Figure 7** continued

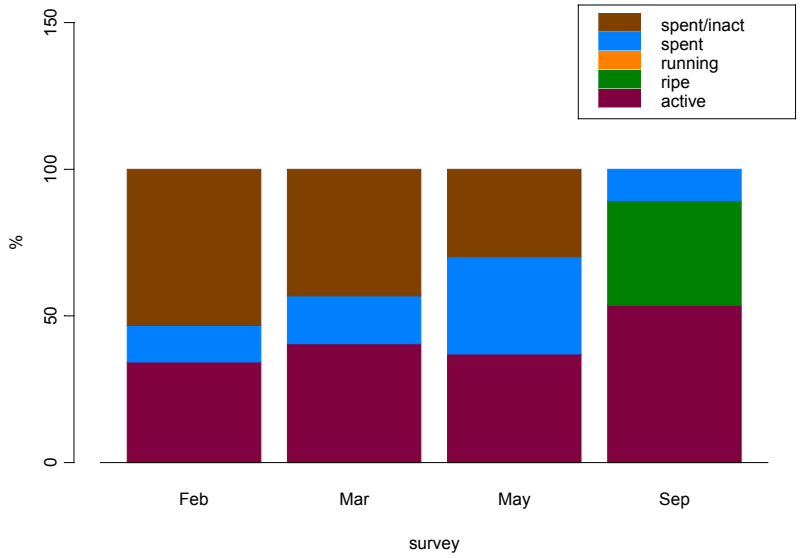


**Figure 8** Maturity distribution in all female deep-water hake measured, grouped by surveys. February 2003, March, May and September 2004.

Figure 8 shows the relative distribution of maturity stages from the three surveys in 2004 and from a BENEFIT survey in February 2003. The figure shows an increasing share of active gonads from January to September. September shows the first sign of active gonads, but no running gonads were recorded in any of the surveys. This could indicate that the main spawning season is later than early September for the fish, which may spawn later during the year in the south.

The above mentioned BENEFIT survey in January-February 2003 gave for the first time an opportunity to look at the whole stock of deep water hake. The survey covered the west coast of South Africa at the same time as Namibian scientists carried out their annual trawl survey with identical gears and methods. An earlier study on intercalibration between Dr. Fridtjof Nansen and this trawler shows that the data for all practical purposes can be treated as similar vessels with similar methods (Strømme and Iilende 2001). Figure 9a shows the merged abundance data of Namibia and South Africa, expressed in numbers by length classes, and Figure 9b shows each country's share of the total in each length class. It is apparent from Figure 9b that most of the young fish, less than 30cm, is found in South African waters. Between 30 and 55 cm there is an increased Namibian share of the fish while for the bigger sizes the presence in Namibia is declining sharply from 55cm and beyond. The presence in Namibia seems to be in modal 'pulses' with increased numbers

from 10, 20 and 35 modal length groups. It is at present unclear if these pulses represent strong year-classes or alternatively migrating groups of common length entering Namibia from the south. When interpreting the declining share of very big fish in Namibian waters is important to keep in mind that in southern Namibia there is an all year round fishery on the deep water hake while in northern South Africa there is no such fishery and this area therefore could function as a sanctuary for *M. paradoxus*.

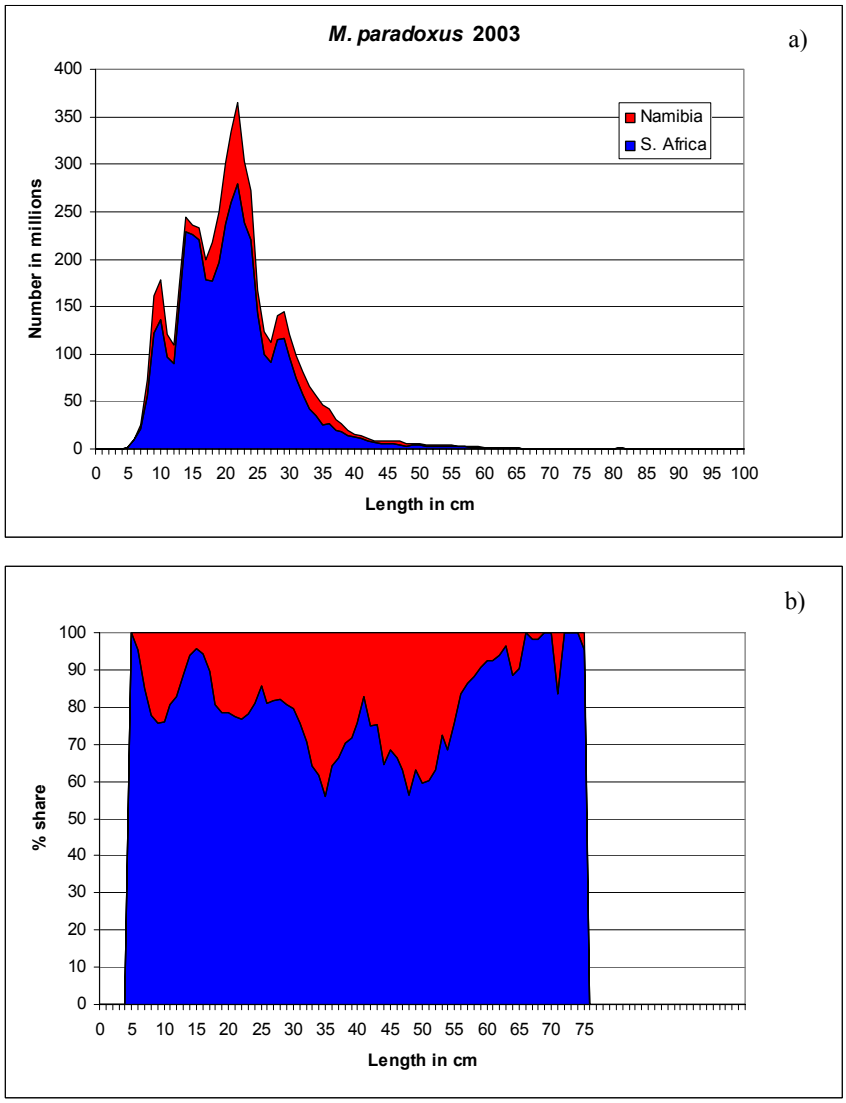


**Figure 9** a) Estimated abundance in numbers of deep-water hake by 1 cm length classes. Namibia (red) added on top of South-Africa (blue).
b) % share between South-Africa (blue) and Namibia (red) of deep-water hake in numbers by 1 cm length classes in February 2003.

Table 1 shows estimates of fish abundance in the study area calculated for the same length groups as in Figure 6 for all three surveys in 2004.

**Table 1.** Estimates of abundance in study area by 5-cm classes in February, April and September.

| Length class (cm) | Numbers (millions) February | Numbers (millions) April | Numbers (millions) September |
|---|---|---|---|
| 6-10 | 60 | 210 | 3 |
| 11-15 | 180 | 553 | 82 |
| 16-20 | 70 | 305 | 94 |
| 21-25 | 95 | 72 | 39 |
| 26-30 | 43 | 47 | 42 |
| 31-35 | 27 | 14 | 62 |
| 36+ | 9 | 13 | 18 |
| | | | |
| Total | 483 | 1215 | 340 |
| | | | |

The increase in the three smallest classes in April seems significant and as seen in Figure 6 seems to be associated with influx of fish from south of the study area. These classes are assumed to have its major components still in the pelagic zone and are therefore not fully represented in the bottom trawl. For the adult fish bigger than 35 cm there seems to be an increase in September as compared to February but we cannot yet conclude if this change is a significant or due to sample variation.

Pooled length frequency distributions of the two hake species grouped by the shelf and slope area are shown in Figure 10.

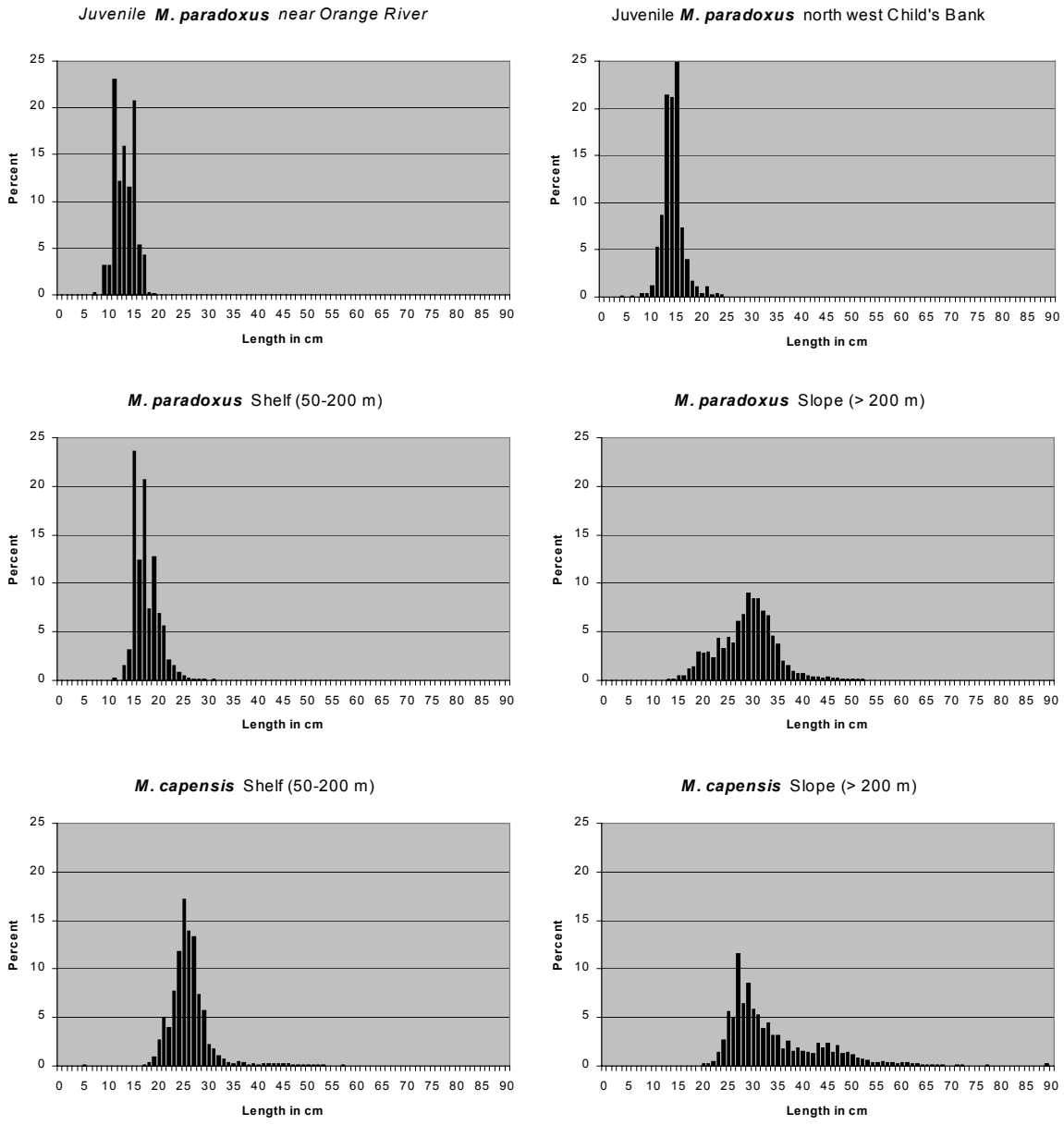


**Figure 10** Pooled length frequencies of hake.

## 5 Considerations of the survey results

Figure 11 shows a conceptual model of the life cycle of the deep-water hake, based on our present but still evolving understanding of the issue. This can be summarised as follows: Main spawning seems to take place in the southern part of the South-African west coast closer to the early fourth quarter of the year. The eggs and larvae follow prevailing currents and end through retention mechanisms up at the shelf area off Hondeklip Bay. As the fish takes a more active pelagic state until it is 20 cm it spreads on the shelf in a northerly and western direction and also enters southern Namibia in this state. As it grows beyond 20 cm it settles soon on bottom and moves gradually towards the slope and mixes with the adult population as it approaches 30 cm. At this stage it can be considered recruited to the adult population. The main recruitment to the adult stock takes part in South Africa but there is a route that goes over the Orange Banks with recruitment to the adult population north of Orange Banks where the shelf narrows. This route may at times be closed due to temporal environment barriers in the region. The ratio between adults and juveniles in Namibia is considerably lower than in South Africa, which indicate an influx of adult fish from South Africa into Namibia. This must follow a route on the slope within its preferred depth range 300-600 m. In order to have a closed life cycle the adults in Namibia must return to South Africa to spawn, or this part of the stock must be considered as a surplus spillover without significance for the long-term survival of the stock and thus an “evolutionary waste”. We therefore conclude that there must be an annual return migration for spawning for a major part of the Namibian component for this to be part of the survival strategy of the species. This conceptual model will probably be adjusted on basis of new data from special surveys in 2005.

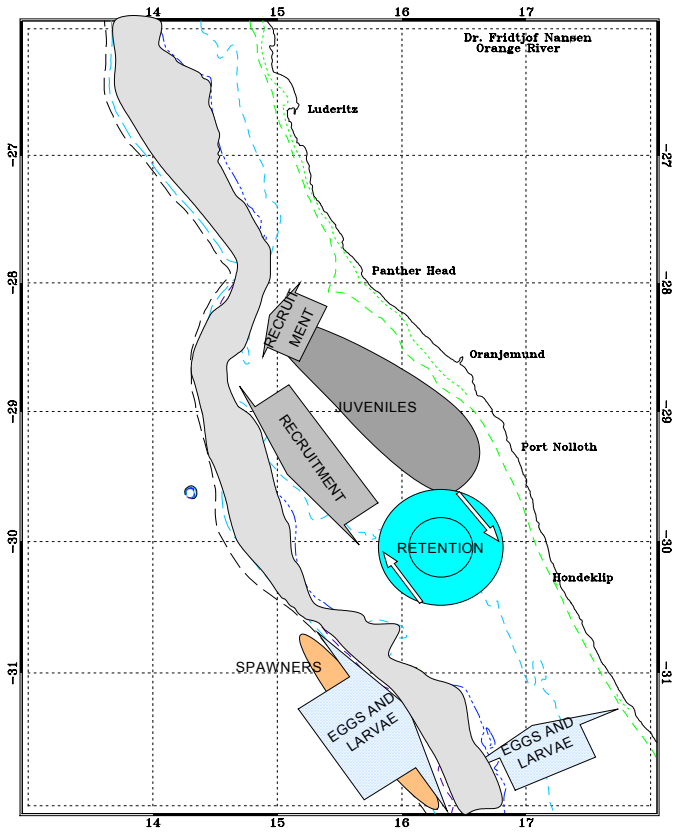


**Figure 11** A conceptual model for the life cycle of deep-water hake in Namibia and South Africa.

Reference cited:

Strømme, T., Lipinski, M., Ostrowski, M. and Alvheim, O. 2004. A transboundary study with emphasis on deep water hake in the Lüderitz – Orange River Cone Area. BCLME SURVEY NO. 1 2004. Bergen 2004, 47 pp. Mimeo.

# Annex 1 Records of fishing stations

PROJECT STATION: 856
DATE:30/ 8/04 GEAR TYPE: BT No:15 POSITION:Lat S 2740
start stop duration Long E 1432
TIME :05:56:35 06:26:21 30 (min) Purpose code: 3
LOG :9205.20 9206.72 1.51 Area code :
FDEPTH: 446 447 GearCond.code:
BDEPTH: 446 447 Validity code:
Towing dir: 330ø Wire out:1300 m Speed: 30 kn*10

Sorted: Kg Total catch: 309.80 CATCH/HOUR: 619.60

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 544.00 | 1904 | 87.80 | 7407 |
| Coelorinchus simorynchus | 48.00 | | 7.75 | |
| Genypterus capensis | 6.00 | 4 | 0.97 | 7408 |
| Raja leopardus | 4.80 | 2 | 0.77 | |
| Coelorinchus braueri | 4.40 | 288 | 0.71 | |
| Helicolenus dactylopterus | 4.00 | 24 | 0.65 | 7409 |
| Raja confundens | 2.60 | 2 | 0.42 | |
| Todarodes angolensis - females | 1.72 | 2 | 0.28 | 7410 |
| Funchalia woodwardi | 1.20 | | 0.19 | |
| Selachophidium guentheri | 0.40 | 18 | 0.06 | |
| Nezumia sp. | 0.40 | 30 | 0.06 | |
| Lampanyctodes hectoris | 0.34 | | 0.05 | |
| Lycoteuthis diadema * | 0.32 | 22 | 0.05 | |
| Tripterophycis gilchristi | 0.30 | 20 | 0.05 | |
| Malacocephalus laevis | 0.30 | 6 | 0.05 | |
| Epigonus sp. | 0.24 | 40 | 0.04 | |
| Bassanago albescens | 0.20 | 2 | 0.03 | |
| Symbolophorus boops | 0.14 | 14 | 0.02 | |
| MARVE01 | 0.08 | 4 | 0.01 | |
| Notacanthus sexspinis | 0.06 | 2 | 0.01 | |
| Photichthys argenteus | 0.06 | 2 | 0.01 | |
| Stoloteuthis sp. | 0.04 | 12 | 0.01 | |
| Total | 619.60 | | 99.99 | |

PROJECT STATION: 857
DATE:30/ 8/04 GEAR TYPE: BT No:15 POSITION:Lat S 2733
start stop duration Long E 1441
TIME :08:24:58 08:55:09 30 (min) Purpose code: 3
LOG :9219.58 9220.81 1.47 Area code :
FDEPTH: 340 342 GearCond.code:
BDEPTH: 340 342 Validity code:
Towing dir: 330ø Wire out:1000 m Speed: 30 kn*10

Sorted: Kg Total catch: 634.74 CATCH/HOUR: 1269.48

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 864.00 | 6178 | 68.06 | 7412 |
| Trachurus trachurus | 292.00 | 1062 | 23.00 | 7414 |
| Coelorinchus simorynchus | 52.00 | | 4.10 | |
| Merluccius paradoxus | 18.00 | 24 | 1.42 | 7413 |
| Merluccius capensis | 14.00 | 10 | 1.10 | 7411 |
| Helicolenus dactylopterus | 9.00 | 62 | 0.71 | 7417 |
| Holohalaelurus regani | 4.00 | 8 | 0.32 | |
| Brama brama | 3.40 | 4 | 0.27 | 7415 |
| Todarodes angolensis - males | 2.54 | 4 | 0.20 | 7421 |
| Genypterus capensis | 2.00 | 4 | 0.16 | 7416 |
| Lophius vomerinus | 1.50 | 2 | 0.12 | 7418 |
| Raja confundens | 1.50 | 2 | 0.12 | |
| Todaropsis eblanae | 1.34 | 10 | 0.11 | 7419 |
| Todarodes angolensis - females | 1.32 | 2 | 0.10 | 7422 |
| Todaropsis eblanae | 1.18 | 8 | 0.09 | 7420 |
| Lepidopus caudatus | 0.70 | | 0.06 | |
| Malacocephalus laevis | 0.60 | 4 | 0.05 | |
| Galeus polli | 0.40 | 6 | 0.03 | |
| Total | 1269.48 | | 100.02 | |

PROJECT STATION: 858
DATE:30/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2733
start stop duration Long E 1448
TIME :10:25:02 10:56:17 31 (min) Purpose code: 3
LOG :9230.35 9231.88 1.53 Area code :
FDEPTH: 321 323 GearCond.code:
BDEPTH: 321 323 Validity code:
Towing dir: 157ø Wire out:1000 m Speed: 30 kn*10

Sorted: Kg Total catch: 295.25 CATCH/HOUR: 571.46

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 348.39 | 3195 | 60.96 | 7424 |
| Trachurus trachurus | 77.42 | 269 | 13.55 | 7426 |
| Merluccius paradoxus | 54.19 | 89 | 9.48 | 7425 |
| Merluccius capensis | 38.71 | 29 | 6.77 | 7423 |
| Genypterus capensis | 21.29 | 23 | 3.73 | 7427 |
| Lophius vomerinus | 9.68 | 4 | 1.69 | 7429 |
| Helicolenus dactylopterus | 7.74 | 48 | 1.35 | 7428 |
| Coelorinchus simorynchus | 4.84 | | 0.85 | |
| Todarodes angolensis - males | 2.52 | 6 | 0.44 | 7432 |
| Lepidopus caudatus | 1.94 | 15 | 0.34 | |
| Todaropsis eblanae | 1.57 | 12 | 0.27 | 7431 |
| Maurolicus muelleri | 0.97 | | 0.17 | |
| Holohalaelurus regani | 0.91 | 2 | 0.16 | |
| Todaropsis eblanae | 0.60 | 6 | 0.10 | 7430 |
| Squilla sp. | 0.39 | 41 | 0.07 | |
| Malacocephalus laevis | 0.10 | 2 | 0.02 | |
| Pentaceros capensis | 0.08 | 2 | 0.01 | |
| Galeus polli | 0.08 | 2 | 0.01 | |
| Bathynectes sp. | 0.04 | 4 | 0.01 | |
| Total | 571.46 | | 99.98 | |

PROJECT STATION: 859
DATE:30/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2730
start stop duration Long E 1458
TIME :12:54:02 13:24:07 30 (min) Purpose code: 3
LOG :9243.90 9245.46 1.55 Area code :
FDEPTH: 243 240 GearCond.code:
BDEPTH: 243 240 Validity code:
Towing dir: 350ø Wire out: 710 m Speed: 30 kn*10

Sorted: Kg Total catch: 107.23 CATCH/HOUR: 214.46

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 90.00 | 2024 | 41.97 | 7434 |
| Merluccius capensis | 66.00 | 500 | 30.77 | 7433 |
| Callorhinchus capensis | 26.00 | 14 | 12.12 | |
| Chelidonichthys capensis | 12.00 | 26 | 5.60 | 7440 |
| Trachurus trachurus | 8.00 | 28 | 3.73 | 7437 |
| Coelorinchus simorynchus | 4.00 | | 1.87 | |
| Lepidopus caudatus | 1.80 | 48 | 0.84 | |
| Sufflogobius bibarbatus | 1.30 | 144 | 0.61 | |
| Lolliguncula mercatoris | 1.10 | | 0.51 | |
| Austroglossus microlepis | 1.00 | 4 | 0.47 | 7436 |
| Squalus megalops | 0.84 | 2 | 0.39 | |
| Genypterus capensis | 0.60 | 2 | 0.28 | 7438 |
| Todaropsis eblanae | 0.58 | 10 | 0.27 | 7442 |
| Zeus capensis | 0.58 | 6 | 0.27 | 7435 |
| Todaropsis eblanae | 0.48 | 6 | 0.22 | 7441 |
| Sepia australis | 0.06 | 4 | 0.03 | |
| Helicolenus dactylopterus | 0.06 | 8 | 0.03 | 7439 |
| Chlorophthalmus agassizi | 0.04 | 2 | 0.02 | |
| Squilla sp. | 0.02 | 2 | 0.01 | |
| Paracallionymus costatus | 0.00 | 4 | | |
| Total | 214.46 | | 100.01 | |

PROJECT STATION: 860
DATE:30/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2724
start stop duration Long E 1505
TIME :14:55:28 15:25:17 30 (min) Purpose code: 3
LOG :9254.90 9256.50 1.59 Area code :
FDEPTH: 162 162 GearCond.code:
BDEPTH: 162 162 Validity code:
Towing dir: 340ø Wire out: 495 m Speed: 30 kn*10

Sorted: Kg Total catch: 170.94 CATCH/HOUR: 341.88

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 150.00 | 1906 | 43.88 | 7443 |
| Etrumeus whiteheadi | 106.00 | | 31.01 | |
| Trachurus trachurus | 54.00 | 352 | 15.80 | 7447 |
| Callorhinchus capensis | 12.00 | 8 | 3.51 | |
| Chelidonichthys capensis | 9.00 | 24 | 2.63 | 7450 |
| Zeus capensis | 2.10 | 36 | 0.61 | 7445 |
| Merluccius paradoxus, juvenile | 2.00 | 84 | 0.59 | 7444 |
| Todaropsis eblanae | 1.20 | 16 | 0.35 | 7452 |
| Lolliguncula mercatoris | 1.10 | 468 | 0.32 | |
| Genypterus capensis | 1.00 | 8 | 0.29 | 7448 |
| Austroglossus microlepis | 1.00 | 6 | 0.29 | 7446 |
| Squalus megalops | 0.80 | 2 | 0.23 | |
| Sufflogobius bibarbatus | 0.78 | 788 | 0.23 | |
| Sepia australis | 0.56 | | 0.16 | |
| Helicolenus dactylopterus | 0.14 | 22 | 0.04 | 7449 |
| Todarodes angolensis - males | 0.10 | 2 | 0.03 | 7453 |
| Todaropsis eblanae | 0.10 | 2 | 0.03 | 7451 |
| Total | 341.88 | | 100.00 | |

PROJECT STATION: 861
DATE:30/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2722
start stop duration Long E 1514
TIME :16:36:04 16:42:21 6 (min) Purpose code: 3
LOG :9265.79 9266.02 0.09 Area code :
FDEPTH: 118 117 GearCond.code: 8
BDEPTH: 118 117 Validity code: 9
Towing dir: 150ø Wire out: 370 m Speed: 30 kn*10

Sorted: Kg Total catch: CATCH/HOUR:

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

PROJECT STATION: 862
DATE:31/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2747
start stop duration Long E 1520
TIME :05:31:47 06:01:01 29 (min) Purpose code: 3
LOG :9342.99 9344.45 1.46 Area code :
FDEPTH: 132 131 GearCond.code:
BDEPTH: 132 131 Validity code:
Towing dir: 350ø Wire out: 380 m Speed: 30 kn*10

Sorted: Kg Total catch: 202.96 CATCH/HOUR: 419.92

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 337.24 | 4612 | 80.31 | 7454 |
| Chelidonichthys capensis | 37.24 | 182 | 8.87 | 7459 |
| Callorhinchus capensis | 20.69 | 17 | 4.93 | |
| Lolliguncula mercatoris | 7.49 | | 1.78 | |
| Thyrsites atun | 6.21 | 4 | 1.48 | 7458 |
| Sepia australis | 4.66 | 205 | 1.11 | |
| Trachurus trachurus | 2.07 | 48 | 0.49 | 7457 |
| Austroglossus microlepis | 2.07 | 10 | 0.49 | 7456 |
| Sufflogobius bibarbatus | 1.24 | 269 | 0.30 | |
| Todaropsis eblanae | 0.41 | 12 | 0.10 | 7460 |
| Sardinops ocellatus | 0.33 | 4 | 0.08 | |
| Merluccius paradoxus, juvenile | 0.21 | 8 | 0.05 | 7455 |
| Lepidopus caudatus | 0.04 | 10 | 0.01 | |
| Engraulis capensis | 0.02 | 2 | | |
| Total | 419.92 | | 100.00 | |

PROJECT STATION: 863

DATE:31/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2753
start stop duration Long E 1506
TIME :08:25:13 08:55:02 30 (min) Purpose code: 3
LOG :9362.42 9363.89 1.47 Area code :
FDEPTH: 166 163 GearCond.code:
BDEPTH: 166 163 Validity code:
Towing dir: 10ø Wire out: 480 m Speed: 30 kn*10

Sorted: Kg Total catch: 157.89 CATCH/HOUR: 315.78

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 132.00 | 1596 | 41.80 | 7461 |
| Etrumeus whiteheadi | 114.00 | | 36.10 | |
| Chelidonichthys capensis | 32.00 | 136 | 10.13 | 7467 |
| Thyrsites atun | 11.00 | 4 | 3.48 | 7465 |
| Callorhinchus capensis | 8.00 | 4 | 2.53 | |
| Squalus megalops | 5.00 | 10 | 1.58 | |
| Genypterus capensis | 2.70 | 12 | 0.86 | 7466 |
| Zeus capensis | 2.68 | 60 | 0.85 | 7462 |
| Austroglossus microlepis | 2.00 | 6 | 0.63 | 7463 |
| Trachurus trachurus | 1.82 | 16 | 0.58 | 7464 |
| Lolligoncula mercatoris | 0.68 | | 0.22 | |
| Lophius vomerinus | 0.60 | 2 | 0.19 | 7468 |
| Congiopodus spinifer | 0.60 | 2 | 0.19 | |
| Holohalaelurus regani | 0.60 | 2 | 0.19 | |
| Todaropsis eblanae | 0.46 | 12 | 0.15 | 7470 |
| Sepia australis | 0.44 | 28 | 0.14 | |
| Sufflogobius bibarbatus | 0.40 | | 0.13 | |
| Todaropsis eblanae | 0.26 | 4 | 0.08 | 7469 |
| Sardinops ocellatus | 0.24 | 2 | 0.08 | |
| Lepidopus caudatus | 0.20 | 12 | 0.06 | |
| Macropipus sp. | 0.10 | 2 | 0.03 | |
| Total | 315.78 | | 100.00 | |

PROJECT STATION: 864

DATE:31/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2800
start stop duration Long E 1503
TIME :10:44:50 11:14:36 30 (min) Purpose code: 3
LOG :9376.07 9377.61 1.52 Area code :
FDEPTH: 182 182 GearCond.code:
BDEPTH: 182 182 Validity code:
Towing dir: 13ø Wire out: 540 m Speed: 30 kn*10

Sorted: Kg Total catch: 443.32 CATCH/HOUR: 886.64

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 524.00 | 5040 | 59.10 | 7471 |
| Etrumeus whiteheadi | 198.00 | | 22.33 | |
| Callorhinchus capensis | 46.00 | 28 | 5.19 | |
| Chelidonichthys capensis | 26.00 | 118 | 2.93 | 7481 |
| Thyrsites atun | 20.68 | 6 | 2.33 | 7478 |
| Thyrsites atun | 19.32 | 12 | 2.18 | 7477 |
| Merluccius capensis | 17.20 | 36 | 1.94 | 7472 |
| Galeorhinus galeus | 16.00 | 2 | 1.80 | |
| Raja straeleni | 4.80 | 2 | 0.54 | |
| Lophius vomerinus | 3.20 | 4 | 0.36 | 7483 |
| Lepidopus caudatus | 2.46 | 128 | 0.28 | |
| Zeus capensis | 1.92 | 44 | 0.22 | 7474 |
| Chelidonichthys queketti | 1.40 | 8 | 0.16 | 7482 |
| Todaropsis eblanae | 1.00 | 14 | 0.11 | 7485 |
| Todaropsis eblanae | 0.82 | 14 | 0.09 | 7484 |
| Squalus megalops | 0.80 | 2 | 0.09 | |
| Sepia australis | 0.74 | | 0.08 | |
| Austroglossus microlepis | 0.70 | 2 | 0.08 | 7475 |
| Trachurus trachurus | 0.50 | 2 | 0.06 | 7476 |
| Lolligoncula mercatoris | 0.44 | | 0.05 | |
| Helicolenus dactylopterus | 0.22 | 28 | 0.02 | 7480 |
| Genypterus capensis | 0.16 | | 0.02 | 7479 |
| Macropipus sp. | 0.14 | 4 | 0.02 | |
| Sufflogobius bibarbatus | 0.06 | | 0.01 | |
| Merluccius paradoxus, juvenile | 0.06 | 2 | 0.01 | 7473 |
| Paracallionymus costatus | 0.02 | 2 | | |
| Total | 886.64 | | 100.00 | |

PROJECT STATION: 865

DATE:31/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2803
start stop duration Long E 1452
TIME :14:03:41 14:33:21 30 (min) Purpose code: 3
LOG :9398.88 9400.38 1.49 Area code :
FDEPTH: 198 198 GearCond.code:
BDEPTH: 198 198 Validity code:
Towing dir: 60ø Wire out: 590 m Speed: 30 kn*10

Sorted: Kg Total catch: 298.54 CATCH/HOUR: 597.08

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Etrumeus whiteheadi | 196.00 | | 32.83 | |
| Merluccius capensis | 172.00 | 278 | 28.81 | 7487 |
| Merluccius capensis | 136.00 | 1010 | 22.78 | 7486 |
| Callorhinchus capensis | 32.00 | 22 | 5.36 | |
| Chelidonichthys capensis | 20.00 | 46 | 3.35 | 7492 |
| Thyrsites atun | 8.00 | 6 | 1.34 | 7491 |
| Merluccius paradoxus, juvenile | 7.22 | 288 | 1.21 | 7488 |
| Trachurus trachurus | 5.54 | 18 | 0.93 | 7490 |
| Squalus megalops | 4.60 | 14 | 0.77 | |
| Chelidonichthys queketti | 4.00 | 16 | 0.67 | 7493 |
| Raja straeleni | 2.60 | 2 | 0.44 | |
| Sepia australis | 2.00 | 240 | 0.33 | |
| Todaropsis eblanae | 1.78 | 24 | 0.30 | 7495 |
| Todaropsis eblanae | 1.54 | 22 | 0.26 | 7494 |
| Holohalaelurus regani | 1.34 | 4 | 0.22 | |
| Zeus capensis | 1.20 | 26 | 0.20 | 7489 |
| Lepidopus caudatus | 0.84 | 32 | 0.14 | |
| Lolligoncula mercatoris | 0.42 | | 0.07 | |
| Total | 597.08 | | 100.01 | |

PROJECT STATION: 866

DATE:31/ 8/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2807
start stop duration Long E 1445
TIME :16:10:35 16:40:24 30 (min) Purpose code: 3
LOG :9412.81 9414.45 1.62 Area code :
FDEPTH: 202 205 GearCond.code:
BDEPTH: 202 205 Validity code:
Towing dir: 355ø Wire out: 595 m Speed: 31 kn*10

Sorted: Kg Total catch: 418.55 CATCH/HOUR: 837.10

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 266.00 | 1528 | 31.78 | 7496 |
| Merluccius capensis | 258.00 | 376 | 30.82 | 7497 |
| Merluccius paradoxus, juvenile | 122.00 | 5612 | 14.57 | 7498 |
| Etrumeus whiteheadi | 68.00 | | 8.12 | |
| Trachurus trachurus | 32.00 | 138 | 3.82 | 7501 |
| Callorhinchus capensis | 26.00 | 12 | 3.11 | |
| Thyrsites atun | 14.00 | 8 | 1.67 | 7502 |
| Chelidonichthys capensis | 10.00 | 16 | 1.19 | 7505 |
| Raja straeleni | 6.00 | 2 | 0.72 | |
| Raja wallacei | 5.00 | 2 | 0.60 | |
| Austroglossus microlepis | 4.60 | 10 | 0.55 | 7500 |
| Chelidonichthys queketti | 4.00 | 18 | 0.48 | 7506 |
| Coelorinchus simorynchus | 4.00 | 32 | 0.48 | |
| Todaropsis eblanae | 3.02 | 80 | 0.36 | 7509 |
| Genypterus capensis | 2.24 | 4 | 0.27 | 7503 |
| Sepia australis | 2.00 | | 0.24 | |
| Lophius vomerinus | 2.00 | 2 | 0.24 | 7507 |
| Lepidopus caudatus | 2.00 | 60 | 0.24 | |
| Squalus megalops | 2.00 | 4 | 0.24 | |
| Zeus capensis | 1.38 | 26 | 0.16 | 7499 |
| Holohalaelurus regani | 1.12 | 4 | 0.13 | |
| Helicolenus dactylopterus | 0.74 | 56 | 0.09 | 7504 |
| Todaropsis eblanae | 0.58 | 14 | 0.07 | 7508 |
| Lolligoncula mercatoris | 0.40 | | 0.05 | |
| Paracallionymus costatus | 0.02 | 4 | | |
| Total | 837.10 | | 100.00 | |

PROJECT STATION: 867

DATE: 1/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2801
start stop duration Long E 1439
TIME :05:40:11 06:10:03 30 (min) Purpose code: 3
LOG :9485.80 9487.24 1.44 Area code :
FDEPTH: 350 351 GearCond.code:
BDEPTH: 350 351 Validity code:
Towing dir: 30ø Wire out:1030 m Speed: 30 kn*10

Sorted: Kg Total catch: 338.79 CATCH/HOUR: 677.58

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 528.00 | 6634 | 77.92 | 7511 |
| Merluccius paradoxus | 56.00 | 88 | 8.26 | 7512 |
| Paraliparis australis | 50.00 | | 7.38 | |
| Genypterus capensis | 18.00 | 16 | 2.66 | 7513 |
| Merluccius capensis | 4.80 | 4 | 0.71 | 7510 |
| Helicolenus dactylopterus | 4.00 | 12 | 0.59 | 7514 |
| Todaropsis eblanae | 3.34 | 24 | 0.49 | 7517 |
| Holohalaelurus regani | 3.10 | 8 | 0.46 | |
| Malacocephalus laevis | 3.04 | 22 | 0.45 | |
| Todarodes angolensis - males | 2.00 | 4 | 0.30 | 7518 |
| Todaropsis eblanae | 1.54 | 12 | 0.23 | 7516 |
| Chelidonichthys capensis | 1.00 | 2 | 0.15 | 7515 |
| Lampanyctodes hectoris | 1.00 | | 0.15 | |
| Lycoteuthis diadema * | 0.64 | 36 | 0.09 | |
| Scyliorhinus capensis | 0.60 | 2 | 0.09 | |
| Galeus polli | 0.52 | 4 | 0.08 | |
| Total | 677.58 | | 100.01 | |

PROJECT STATION: 868

DATE: 1/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2803
start stop duration Long E 1436
TIME :08:10:27 08:40:00 30 (min) Purpose code: 3
LOG :9496.84 9498.31 1.46 Area code :
FDEPTH: 457 455 GearCond.code:
BDEPTH: 457 455 Validity code:
Towing dir: 25ø Wire out:1300 m Speed: 30 kn*10

Sorted: Kg Total catch: 146.04 CATCH/HOUR: 292.08

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 134.00 | 170 | 45.88 | 7520 |
| Merluccius paradoxus | 104.00 | 764 | 35.61 | 7519 |
| Coelorinchus simorynchus | 24.00 | | 8.22 | |
| Genypterus capensis | 22.00 | 14 | 7.53 | 7521 |
| Todarodes angolensis - males | 1.80 | 2 | 0.62 | 7522 |
| Etmopterus sp. | 1.68 | 56 | 0.58 | |
| Todarodes angolensis - females | 1.60 | 2 | 0.55 | 7523 |
| Lycoteuthis diadema * | 0.90 | 44 | 0.31 | |
| Notacanthus sexspinis | 0.90 | 22 | 0.31 | |
| Todaropsis eblanae | 0.28 | | 0.10 | |
| Photichthys argenteus | 0.20 | 10 | 0.07 | |
| Stereomastis sp. | 0.18 | 36 | 0.06 | |
| Lampanyctodes hectoris | 0.14 | | 0.05 | |
| Symbolophorus boops | 0.12 | 12 | 0.04 | |
| SKRAR10 | 0.10 | 16 | 0.03 | |
| Tripterophycis gilchristi | 0.08 | 4 | 0.03 | |
| PENAEIDAE | 0.02 | 2 | 0.01 | |
| Epigonus sp. | 0.02 | 4 | 0.01 | |
| MARVE01 | 0.02 | 2 | 0.01 | |
| Gymnoscopelus sp. | 0.02 | 2 | 0.01 | |
| Diaphus sp. | 0.02 | 6 | 0.01 | |
| Bathynectes sp. | 0.00 | 2 | | |
| Total | 292.08 | | 100.04 | |

PROJECT STATION: 869

DATE: 1/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2809
start stop duration Long E 1433
TIME :10:58:16 11:28:13 30 (min) Purpose code: 3
LOG :9511.40 9512.97 1.55 Area code :
FDEPTH: 385 387 GearCond.code:
BDEPTH: 385 387 Validity code:
Towing dir: 20ø Wire out: 100 m Speed: 30 kn*10

Sorted: Kg Total catch: 479.48 CATCH/HOUR: 958.96

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 766.00 | 4988 | 79.88 | 7525 |
| Coelorinchus simorynchus | 88.00 | | 9.18 | |
| Scyliorhinus capensis | 28.00 | 52 | 2.92 | |
| Merluccius paradoxus | 20.00 | 30 | 2.09 | 7526 |
| Merluccius capensis | 16.00 | 8 | 1.67 | 7524 |
| Genypterus capensis | 13.00 | 16 | 1.36 | 7527 |
| Holohalaelurus regani | 8.00 | 30 | 0.83 | |
| Symbolophorus boops | 3.28 | 258 | 0.34 | |
| Todarodes angolensis - males | 3.06 | 6 | 0.32 | 7531 |
| Helicolenus dactylopterus | 3.00 | 8 | 0.31 | 7528 |
| Malacocephalus laevis | 2.34 | 28 | 0.24 | |
| Lophius vomerinus | 2.00 | 2 | 0.21 | 7529 |
| Lycoteuthis diadema * | 1.50 | 68 | 0.16 | |
| Todarodes angolensis - females | 1.32 | 2 | 0.14 | 7532 |
| Galeus polli | 1.28 | 10 | 0.13 | |
| Todaropsis eblanae | 0.92 | 2 | 0.10 | 7530 |
| Squalus megalops | 0.86 | 2 | 0.09 | |
| Tripterophycis gilchristi | 0.12 | 8 | 0.01 | |
| Photichthys argenteus | 0.10 | 6 | 0.01 | |
| Stereomastis sp. | 0.06 | 16 | 0.01 | |
| Macropipus sp. | 0.06 | 2 | 0.01 | |
| Lestidiops sp. | 0.04 | 2 | | |
| Epigonus sp. | 0.02 | 4 | | |
| Total | 958.96 | | 100.01 | |

PROJECT STATION: 870

DATE: 1/ 9/04 GEAR TYPE: BT No:15 POSITION:Lat S 2810
start stop duration Long E 1431
TIME :13:05:43 13:35:33 30 (min) Purpose code: 3
LOG :9521.35 9522.90 1.56 Area code :
FDEPTH: 466 468 GearCond.code:
BDEPTH: 466 468 Validity code:
Towing dir: 26ø Wire out:1315 m Speed: 30 kn*10

Sorted: Kg Total catch: 246.64 CATCH/HOUR: 493.28

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 262.00 | 1566 | 53.11 | 7534 |
| Merluccius paradoxus | 158.00 | 170 | 32.03 | 7535 |
| Genypterus capensis | 24.00 | 18 | 4.87 | 7536 |
| Merluccius capensis | 16.00 | 4 | 3.24 | 7533 |
| Coelorinchus simorynchus | 16.00 | | 3.24 | |
| Krill | 6.64 | | 1.35 | |
| Todarodes angolensis - females | 2.24 | 2 | 0.45 | 7539 |
| Lycoteuthis diadema * | 1.88 | 100 | 0.38 | |
| Todarodes angolensis - males | 1.54 | 2 | 0.31 | 7538 |
| Photichthys argenteus | 0.88 | 44 | 0.18 | |
| Etmopterus sp. | 0.82 | 34 | 0.17 | |
| Holohalaelurus regani | 0.66 | 2 | 0.13 | |
| Todaropsis eblanae | 0.56 | 2 | 0.11 | 7537 |
| Raja confundens | 0.48 | 2 | 0.10 | |
| Symbolophorus boops | 0.44 | 40 | 0.09 | |
| Nezumia sp. | 0.38 | 12 | 0.08 | |
| Bassanago albescens | 0.20 | 2 | 0.04 | |
| Aristaeomorpha sp. | 0.10 | | 0.02 | |
| Epigonus sp. | 0.10 | 14 | 0.02 | |
| Tripterophycis gilchristi | 0.10 | 4 | 0.02 | |
| Diaphus sp. | 0.10 | | 0.02 | |
| Gonostoma elongatum | 0.06 | 2 | 0.01 | |
| Stereomastis sp. | 0.04 | 16 | 0.01 | |
| Lampanyctodes hectoris | 0.04 | | 0.01 | |
| Bathynectes sp. | 0.02 | 2 | | |
| STEST05 | 0.00 | 2 | | |
| Total | 493.28 | | 99.99 | |

PROJECT STATION: 871

DATE: 1/ 9/04 GEAR TYPE: BT No:15 POSITION:Lat S 2810
start stop duration Long E 1428
TIME :15:27:16 15:57:33 30 (min) Purpose code: 3
LOG :9531.76 9533.35 1.59 Area code :
FDEPTH: 562 561 GearCond.code:
BDEPTH: 562 561 Validity code:
Towing dir: 30ø Wire out:1555 m Speed: 30 kn*10

Sorted: Kg Total catch: 149.45 CATCH/HOUR: 298.90

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Coelorinchus braueri | 106.00 | | 35.46 | |
| Merluccius paradoxus | 70.00 | 360 | 23.42 | 7540 |
| Nezumia sp. | 56.00 | | 18.74 | |
| Merluccius paradoxus | 14.00 | 12 | 4.68 | 7541 |
| Notacanthus sexspinis | 12.60 | 424 | 4.22 | |
| Lithodes sp. | 8.00 | 142 | 2.68 | |
| Etmopterus sp. | 8.00 | | 2.68 | |
| Psychrolutes macrocephalus | 6.52 | 70 | 2.18 | |
| Selachophidium guentheri | 3.84 | 52 | 1.28 | |
| Plesionika martia | 2.90 | | 0.97 | |
| MARVE01 | 2.20 | 154 | 0.74 | |
| Photichthys argenteus | 2.20 | 96 | 0.74 | |
| Raja confundens | 1.82 | 4 | 0.61 | |
| Bassanago albescens | 1.16 | 8 | 0.39 | |
| Raja leopardus | 0.82 | 4 | 0.27 | |
| Todarodes angolensis - females | 0.78 | 2 | 0.26 | 7543 |
| Parapagurus pilosimanus | 0.54 | 72 | 0.18 | |
| Pasiphaea sp. | 0.28 | 68 | 0.09 | |
| Coelorinchus matamua | 0.26 | 2 | 0.09 | |
| Bathophilus longipinnis | 0.24 | 6 | 0.08 | |
| Myxine capensis | 0.22 | 4 | 0.07 | |
| Tripterophycis gilchristi | 0.12 | 8 | 0.04 | |
| Malacocephalus laevis | 0.08 | | 0.03 | |
| Gymnoscopelus sp. | 0.08 | 14 | 0.03 | |
| Rossia sp. | 0.06 | 4 | 0.02 | |
| Lophius vomerinus | 0.06 | 2 | 0.02 | 7542 |
| Plesiopenaeus edwardsianus | 0.04 | 2 | 0.01 | |
| Lampadena sp. | 0.04 | 2 | 0.01 | |
| Stoloteuthis sp. | 0.02 | 4 | 0.01 | |
| Cryptopsaras couesii | 0.02 | 2 | 0.01 | |
| Total | 298.90 | | 100.01 | |

PROJECT STATION: 872

DATE: 2/ 9/04 GEAR TYPE: BT No:15 POSITION:Lat S 2841
start stop duration Long E 1422
TIME :05:33:17 06:03:02 30 (min) Purpose code: 3
LOG :9597.05 9598.56 1.50 Area code :
FDEPTH: 452 451 GearCond.code:
BDEPTH: 452 451 Validity code:
Towing dir: 2ø Wire out:1340 m Speed: 30 kn*10

Sorted: Kg Total catch: 583.60 CATCH/HOUR: 1167.20

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 1154.00 | 5114 | 98.87 | 7544 |
| Genypterus capensis | 7.00 | 8 | 0.60 | 7545 |
| Coelorinchus simorynchus | 4.00 | | 0.34 | |
| Raja confundens | 1.00 | | 0.09 | |
| Etmopterus sp. | 0.60 | | 0.05 | |
| Rossia enigmatica | 0.40 | | 0.03 | |
| Lycoteuthis diadema * | 0.10 | | 0.01 | |
| Malacocephalus laevis | 0.10 | | 0.01 | |
| Total | 1167.20 | | 100.00 | |

PROJECT STATION: 873

DATE: 2/ 9/04 GEAR TYPE: BT No:15 POSITION:Lat S 2843
start stop duration Long E 1425
TIME :08:02:57 08:30:37 28 (min) Purpose code: 3
LOG :9607.89 9609.26 1.35 Area code :
FDEPTH: 353 351 GearCond.code:
BDEPTH: 353 351 Validity code:
Towing dir: 360ø Wire out:1020 m Speed: 30 kn*10

Sorted: Kg Total catch: 779.62 CATCH/HOUR: 1670.61

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 1219.29 | 7663 | 72.98 | 7547 |
| Coelorinchus simorynchus | 132.86 | | 7.95 | |
| Helicolenus dactylopterus | 64.29 | 268 | 3.85 | 7553 |
| Thyrsites atun | 60.00 | 24 | 3.59 | 7551 |
| Merluccius capensis | 57.86 | 32 | 3.46 | 7546 |
| Epigonus sp. | 32.14 | | 1.92 | |
| Merluccius paradoxus | 23.57 | 21 | 1.41 | 7548 |
| Malacocephalus laevis | 13.93 | 41 | 0.83 | |
| AF022 | 13.71 | 116 | 0.82 | |
| Squalus acanthias | 11.14 | 6 | 0.67 | |
| Holohalaelurus regani | 8.36 | 17 | 0.50 | |
| Genypterus capensis | 7.50 | 6 | 0.45 | 7552 |
| Todaropsis eblanae | 5.72 | 34 | 0.34 | 7555 |
| Octopus magnificus | 4.76 | | 0.28 | |
| Todaropsis eblanae | 4.52 | 32 | 0.27 | 7554 |
| Cyttus traversi | 3.36 | 17 | 0.20 | |
| AF | 3.00 | 24 | 0.18 | 7549 |
| Todarodes angolensis - males | 1.71 | 4 | 0.10 | 7556 |
| Squalus megalops | 0.92 | 2 | 0.06 | |
| Scyliorhinus capensis | 0.64 | 2 | 0.04 | |
| Lepidopus caudatus | 0.58 | 4 | 0.03 | |
| Maurolicus muelleri | 0.21 | | 0.01 | |
| Rossia enigmatica | 0.17 | 4 | 0.01 | |
| Hoplostethus mediterraneus | 0.17 | 2 | 0.01 | |
| Lycoteuthis diadema * | 0.06 | 2 | | |
| AF108K | 0.06 | 2 | | |
| Photichthys argenteus | 0.04 | | | |
| Etmopterus sp. | 0.04 | 4 | | |
| Rochinia sp. | 0.00 | 2 | | |
| Thyrsites atun | 0.00 | 2 | | 7550 |
| Total | 1670.61 | | 99.96 | |

PROJECT STATION: 874

DATE: 2/ 9/04 GEAR TYPE: BT No:15 POSITION:Lat S 2835
start stop duration Long E 1420
TIME :10:19:08 10:49:21 30 (min) Purpose code: 3
LOG :9618.22 9619.72 1.50 Area code :
FDEPTH: 552 557 GearCond.code:
BDEPTH: 552 557 Validity code:
Towing dir: 360ø Wire out:1550 m Speed: 30 kn*10

Sorted: Kg Total catch: 137.90 CATCH/HOUR: 275.80

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 56.00 | 246 | 20.30 | 7557 |
| Merluccius paradoxus | 52.00 | 54 | 18.85 | 7558 |
| Coelorinchus braueri | 24.40 | | 8.85 | |
| Raja confundens | 17.60 | 36 | 6.38 | |
| Chaceon sp. | 13.00 | | 4.71 | |
| Octopus magnificus | 12.60 | 2 | 4.57 | |
| Hydrolagus africanus | 12.00 | | 4.35 | |
| Etmopterus sp. | 12.00 | 496 | 4.35 | |
| Raja leopardus | 10.40 | 24 | 3.77 | |
| Nezumia sp. | 10.00 | | 3.63 | |
| Notacanthus sexspinis | 8.22 | 202 | 2.98 | |
| EUPH | 8.00 | | 2.90 | |
| Hoplostethus sp. | 6.00 | 160 | 2.18 | |
| Torpedo nobiliana | 6.00 | 2 | 2.18 | |
| Selachophidium guentheri | 4.78 | 48 | 1.73 | |
| Plesionika martia | 4.50 | | 1.63 | |
| Bassanago albescens | 3.82 | | 1.39 | |
| Photichthys argenteus | 3.00 | 246 | 1.09 | |
| Lithodes sp. | 2.00 | | 0.73 | |
| Careproctus griseldea * | 1.66 | 10 | 0.60 | |
| Todarodes angolensis - females | 1.52 | 70 | 0.55 | 7560 |
| Psychrolutes macrocephalus | 1.34 | 20 | 0.49 | |
| Opisthoteuthis sp. | 0.92 | 2 | 0.33 | |
| Myxine capensis | 0.90 | 8 | 0.33 | |
| Coelorinchus matamua | 0.70 | 6 | 0.25 | |
| Bathophilus longipinnis | 0.44 | 8 | 0.16 | |
| Holohalaelurus regani | 0.42 | 2 | 0.15 | |
| Lycoteuthis diadema * | 0.30 | 14 | 0.11 | |
| MARVE01 | 0.30 | 30 | 0.11 | |
| Tripterophycis gilchristi | 0.28 | 6 | 0.10 | |
| Pasiphaea sp. | 0.20 | | 0.07 | |
| Lophius vomerinus | 0.14 | 2 | 0.05 | 7559 |
| Gymnoscopelus sp. | 0.12 | 16 | 0.04 | |
| Oreosoma atlanticum | 0.10 | 2 | 0.04 | |
| Diretmoides parini | 0.08 | 2 | 0.03 | |
| Epigonus sp. | 0.02 | 2 | 0.01 | |
| Lepidion capensis | 0.02 | 2 | 0.01 | |
| Symbolophorus boops | 0.02 | 2 | 0.01 | |
| Diaphus sp. | 0.00 | 2 | | |
| Total | 275.80 | | 100.01 | |

PROJECT STATION: 875

DATE: 2/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2833
start stop duration Long E 1424
TIME :12:12:09 12:42:07 30 (min) Purpose code: 3
LOG :9627.07 9628.62 1.53 Area code :
FDEPTH: 451 448 GearCond.code:
BDEPTH: 451 448 Validity code:
Towing dir: 20ø Wire out:1288 m Speed: 30 kn*10

Sorted: Kg Total catch: 920.38 CATCH/HOUR: 1840.76

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 1794.00 | 7364 | 97.46 | 7561 |
| Merluccius paradoxus | 24.00 | 28 | 1.30 | 7562 |
| Genypterus capensis | 14.00 | 16 | 0.76 | 7563 |
| Coelorinchus simorynchus | 4.00 | | 0.22 | |
| Todarodes angolensis - females | 1.56 | 2 | 0.08 | 7564 |
| Raja confundens | 1.32 | 2 | 0.07 | |
| Malacocephalus laevis | 1.20 | 6 | 0.07 | |
| Chiroteuthis sp. | 0.54 | 2 | 0.03 | |
| Lycoteuthis diadema * | 0.14 | 4 | 0.01 | |
| Total | 1840.76 | | 100.00 | |

PROJECT STATION: 876

DATE: 2/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2833
start stop duration Long E 1425
TIME :14:02:00 14:32:09 30 (min) Purpose code: 3
LOG :9636.07 9637.53 1.44 Area code :
FDEPTH: 364 377 GearCond.code:
BDEPTH: 364 377 Validity code:
Towing dir: 10ø Wire out:1068 m Speed: 30 kn*10

Sorted: Kg Total catch: 660.68 CATCH/HOUR: 1321.36

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 820.00 | 5310 | 62.06 | 7566 |
| Scyliorhinus capensis | 136.00 | | 10.29 | |
| Epigonus sp. | 96.00 | | 7.27 | |
| Helicolenus dactylopterus | 78.00 | 316 | 5.90 | 7571 |
| Coelorinchus simorynchus | 78.00 | | 5.90 | |
| Maurolicus muelleri | 16.00 | | 1.21 | |
| Thyrsites atun | 15.00 | 8 | 1.14 | 7569 |
| Holohalaelurus regani | 14.00 | | 1.06 | |
| Malacocephalus laevis | 11.40 | 46 | 0.86 | |
| Lophius vomerinus | 10.00 | 4 | 0.76 | 7572 |
| Genypterus capensis | 8.70 | 8 | 0.66 | 7570 |
| Raja straeleni | 8.00 | 2 | 0.61 | |
| Todarodes angolensis - males | 6.26 | 14 | 0.47 | 7574 |
| Brama brama | 5.40 | 4 | 0.41 | 7568 |
| Octopus magnificus | 4.00 | 2 | 0.30 | |
| Raja confundens | 3.00 | 2 | 0.23 | |
| Todaropsis eblanae | 2.84 | 18 | 0.21 | 7573 |
| Merluccius capensis | 2.70 | 2 | 0.20 | 7565 |
| Galeus polli | 2.20 | 20 | 0.17 | |
| Merluccius paradoxus | 1.80 | | 0.14 | 7567 |
| Todarodes angolensis - females | 0.90 | | 0.07 | 7575 |
| Lycoteuthis diadema * | 0.60 | 20 | 0.05 | |
| Rossia enigmatica | 0.36 | 12 | 0.03 | |
| Hoplostethus mediterraneus | 0.10 | 10 | 0.01 | |
| Howella sherboni | 0.04 | 2 | | |
| Symbolophorus boops | 0.04 | 4 | | |
| Tripterophycis gilchristi | 0.02 | 2 | | |
| Total | 1321.36 | | 100.01 | |

PROJECT STATION: 877

DATE: 2/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2825
start stop duration Long E 1426
TIME :15:40:56 16:10:47 30 (min) Purpose code: 3
LOG :9644.40 9645.94 1.53 Area code :
FDEPTH: 422 418 GearCond.code:
BDEPTH: 422 418 Validity code:
Towing dir: 5ø Wire out:1215 m Speed: 30 kn*10

Sorted: Kg Total catch: 886.93 CATCH/HOUR: 1773.86

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 1748.00 | 8318 | 98.54 | 7576 |
| Genypterus capensis | 6.80 | 6 | 0.38 | 7577 |
| Raja confundens | 5.80 | 8 | 0.33 | |
| Todarodes angolensis - males | 3.64 | 8 | 0.21 | 7579 |
| Helicolenus dactylopterus | 3.62 | 10 | 0.20 | 7578 |
| Todarodes angolensis - females | 2.58 | 4 | 0.15 | 7580 |
| Coelorinchus simorynchus | 2.00 | | 0.11 | |
| Holohalaelurus regani | 1.12 | 4 | 0.06 | |
| Epigonus sp. | 0.30 | 4 | 0.02 | |
| Total | 1773.86 | | 100.00 | |

PROJECT STATION: 878

DATE: 3/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2840
start stop duration Long E 1436
TIME :05:22:51 05:52:12 29 (min) Purpose code: 3
LOG :9712.67 9714.24 1.56 Area code :
FDEPTH: 177 177 GearCond.code:
BDEPTH: 177 177 Validity code:
Towing dir: 360ø Wire out: 570 m Speed: 30 kn*10

Sorted: Kg Total catch: 216.16 CATCH/HOUR: 447.22

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Emmelichthys nitidus | 142.76 | 4908 | 31.92 | |
| Thyrsites atun | 53.79 | 112 | 12.03 | 7585 |
| Merluccius capensis | 41.38 | 56 | 9.25 | 7581 |
| Trachurus trachurus | 39.31 | 329 | 8.79 | 7584 |
| Squalus acanthias | 28.97 | 46 | 6.48 | |
| Galeorhinus galeus | 26.90 | 2 | 6.01 | |
| Chelidonichthys queketti | 22.76 | 159 | 5.09 | 7589 |
| Squalus megalops | 21.72 | 48 | 4.86 | |
| Zeus capensis | 18.62 | 112 | 4.16 | 7582 |
| Chelidonichthys capensis | 16.55 | 25 | 3.70 | 7588 |
| Lepidopus caudatus | 13.45 | 66 | 3.01 | |
| Raja wallacei | 8.28 | 2 | 1.85 | |
| Congiopodus torvus | 6.21 | 14 | 1.39 | |
| Mustelus palumbes | 2.07 | 2 | 0.46 | |
| Genypterus capensis | 1.66 | 2 | 0.37 | 7586 |
| Raja confundens | 1.03 | 2 | 0.23 | |
| Todaropsis eblanae | 0.64 | 6 | 0.14 | 7590 |
| Cynoglossus zanzibarensis | 0.48 | | 0.11 | 7583 |
| Todaropsis eblanae | 0.19 | 2 | 0.04 | 7591 |
| Arnoglossus capensis | 0.19 | 12 | 0.04 | |
| Helicolenus dactylopterus | 0.14 | 12 | 0.03 | 7587 |
| Sepia australis | 0.12 | 8 | 0.03 | |
| Total | 447.22 | | 99.99 | |

PROJECT STATION: 879

DATE: 3/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2835
start stop duration Long E 1446
TIME :07:34:37 08:04:12 30 (min) Purpose code: 3
LOG :9726.12 9727.60 1.47 Area code :
FDEPTH: 200 203 GearCond.code:
BDEPTH: 200 203 Validity code:
Towing dir: 320ø Wire out: 600 m Speed: 30 kn*10

Sorted: Kg Total catch: 116.28 CATCH/HOUR: 232.56

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 42.00 | 754 | 18.06 | 7594 |
| Merluccius capensis | 40.00 | 90 | 17.20 | 7592 |
| Squalus megalops | 24.00 | 60 | 10.32 | |
| Lepidopus caudatus | 20.00 | | 8.60 | |
| Merluccius paradoxus, juvenile | 18.00 | 990 | 7.74 | 7595 |
| Holohalaelurus regani | 18.00 | 64 | 7.74 | |
| Etrumeus whiteheadi | 14.00 | | 6.02 | |
| Thyrsites atun | 10.00 | 10 | 4.30 | 7598 |
| Callorhinchus capensis | 9.00 | 8 | 3.87 | |
| Zeus capensis | 8.00 | 82 | 3.44 | 7596 |
| Sepia australis | 7.86 | 924 | 3.38 | |
| Chelidonichthys capensis | 6.00 | 12 | 2.58 | 7601 |
| Trachurus trachurus | 4.00 | 30 | 1.72 | 7597 |
| Chelidonichthys queketti | 2.68 | 20 | 1.15 | 7602 |
| Merluccius paradoxus | 1.50 | 6 | 0.64 | 7593 |
| Helicolenus dactylopterus | 1.34 | 40 | 0.58 | 7600 |
| Todaropsis eblanae | 1.24 | | 0.53 | |
| Maurolicus muelleri | 1.00 | | 0.43 | |
| Torpedo nobiliana | 0.68 | 2 | 0.29 | |
| Lolligoncula mercatoris | 0.62 | | 0.27 | |
| Congiopodus torvus | 0.42 | 2 | 0.18 | |
| Genypterus capensis | 0.40 | 2 | 0.17 | 7599 |
| Coelorinchus simorynchus | 0.40 | 4 | 0.17 | |
| Congiopodus spinifer | 0.38 | 2 | 0.16 | |
| Arnoglossus capensis | 0.38 | 16 | 0.16 | |
| Paracallionymus costatus | 0.32 | 56 | 0.14 | |
| Parapagurus dimorphus | 0.20 | | 0.09 | |
| Todaropsis eblanae | 0.14 | | 0.06 | |
| Total | 232.56 | | 99.99 | |

PROJECT STATION: 880

DATE: 3/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2829
start stop duration Long E 1438
TIME :09:17:20 09:47:11 30 (min) Purpose code: 3
LOG :9735.95 9737.44 1.49 Area code :
FDEPTH: 169 170 GearCond.code:
BDEPTH: 169 170 Validity code:
Towing dir: 315ø Wire out: 540 m Speed: 30 kn*10

Sorted: Kg Total catch: 261.05 CATCH/HOUR: 522.10

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Thyrsites atun | 219.52 | 194 | 42.05 | 7606 |
| Thyrsites atun | 128.48 | 40 | 24.61 | 7607 |
| Lepidopus caudatus | 56.00 | 86 | 10.73 | |
| Zeus capensis | 56.00 | 472 | 10.73 | 7604 |
| Merluccius capensis | 14.00 | 22 | 2.68 | 7603 |
| Emmelichthys nitidus | 12.00 | | 2.30 | |
| Chelidonichthys queketti | 10.00 | 58 | 1.92 | 7610 |
| Chelidonichthys capensis | 8.00 | 12 | 1.53 | 7609 |
| Trachurus trachurus | 8.00 | 46 | 1.53 | 7605 |
| Holohalaelurus regani | 3.00 | 10 | 0.57 | |
| Squalus megalops | 2.00 | 4 | 0.38 | |
| Congiopodus spinifer | 1.80 | | 0.34 | |
| Todaropsis eblanae | 1.58 | 14 | 0.30 | 7611 |
| Todaropsis eblanae | 1.14 | 8 | 0.22 | 7612 |
| Genypterus capensis | 0.32 | 2 | 0.06 | 7608 |
| Scyliorhinus capensis | 0.26 | 2 | 0.05 | |
| Total | 522.10 | | 100.00 | |

PROJECT STATION: 881

DATE: 3/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2821
start stop duration Long E 1438
TIME :11:00:51 11:30:46 30 (min) Purpose code: 3
LOG :9744.58 9746.02 1.43 Area code :
FDEPTH: 175 177 GearCond.code:
BDEPTH: 175 177 Validity code:
Towing dir: 350ø Wire out: 540 m Speed: 30 kn*10

Sorted: Kg Total catch: 618.14 CATCH/HOUR: 1236.28

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Zeus capensis | 670.00 | 5832 | 54.19 | 7614 |
| Emmelichthys nitidus | 330.00 | | 26.69 | |
| Thyrsites atun | 161.02 | 136 | 13.02 | 7617 |
| Thyrsites atun | 22.98 | 48 | 1.86 | 7616 |
| Merluccius capensis | 18.00 | 40 | 1.46 | 7613 |
| Trachurus trachurus | 14.00 | 92 | 1.13 | 7615 |
| Congiopodus torvus | 8.00 | 6 | 0.65 | |
| Chelidonichthys capensis | 6.00 | 10 | 0.49 | 7619 |
| Holohalaelurus regani | 3.52 | 10 | 0.28 | |
| Chelidonichthys queketti | 1.16 | 8 | 0.09 | 7620 |
| Congiopodus spinifer | 0.82 | 2 | 0.07 | |
| Todaropsis eblanae | 0.36 | 4 | 0.03 | 7622 |
| Genypterus capensis | 0.24 | 2 | 0.02 | 7618 |
| Todaropsis eblanae | 0.18 | 2 | 0.01 | 7621 |
| Total | 1236.28 | | 99.99 | |

PROJECT STATION: 882

DATE: 3/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2818
start stop duration Long E 1443
TIME :12:38:58 13:08:46 30 (min) Purpose code: 3
LOG :9752.93 9754.43 1.49 Area code :
FDEPTH: 208 205 GearCond.code:
BDEPTH: 208 205 Validity code:
Towing dir: 165ø Wire out: 606 m Speed: 30 kn*10

Sorted: Kg Total catch: 307.92 CATCH/HOUR: 615.84

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 162.00 | 222 | 26.31 | 7624 |
| Merluccius capensis | 154.00 | 512 | 25.01 | 7623 |
| Etrumeus whiteheadi | 148.00 | | 24.03 | |
| Lepidopus caudatus | 46.00 | | 7.47 | |
| Squalus megalops | 26.00 | 68 | 4.22 | |
| Zeus capensis | 20.00 | 302 | 3.25 | 7626 |
| Thyrsites atun | 14.00 | 12 | 2.27 | 7628 |
| Trachurus trachurus | 10.00 | 64 | 1.62 | 7627 |
| Holohalaelurus regani | 9.00 | 36 | 1.46 | |
| Chelidonichthys capensis | 8.24 | 18 | 1.34 | 7630 |
| Sepia australis | 4.82 | 460 | 0.78 | |
| Lophius vomerinus | 4.40 | 4 | 0.71 | 7632 |
| Congiopodus torvus | 4.00 | 2 | 0.65 | |
| Merluccius paradoxus, juvenile | 2.06 | 156 | 0.33 | 7625 |
| Chelidonichthys queketti | 1.10 | 8 | 0.18 | 7631 |
| Todaropsis eblanae | 1.06 | 12 | 0.17 | 7634 |
| Todaropsis eblanae | 0.44 | 4 | 0.07 | 7633 |
| Congiopodus spinifer | 0.32 | 2 | 0.05 | |
| Paracallionymus costatus | 0.22 | 42 | 0.04 | |
| Helicolenus dactylopterus | 0.14 | 64 | 0.02 | 7629 |
| Bathynectes sp. | 0.04 | 2 | 0.01 | |
| Total | 615.84 | | 99.99 | |

PROJECT STATION: 883

DATE: 3/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2825
start stop duration Long E 1445
TIME :14:21:24 14:51:10 30 (min) Purpose code: 3
LOG :9763.22 9764.74 1.51 Area code :
FDEPTH: 204 202 GearCond.code:
BDEPTH: 204 202 Validity code:
Towing dir: 350ø Wire out: 606 m Speed: 30 kn*10

Sorted: Kg Total catch: 385.75 CATCH/HOUR: 771.50

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Lepidopus caudatus | 210.00 | | 27.22 | |
| Merluccius capensis | 146.00 | 170 | 18.92 | 7636 |
| Etrumeus whiteheadi | 96.00 | | 12.44 | |
| Thyrsites atun | 72.00 | 50 | 9.33 | 7643 |
| Merluccius capensis | 72.00 | 328 | 9.33 | 7635 |
| Merluccius paradoxus | 60.20 | 1244 | 7.80 | 7638 |
| Merluccius paradoxus, juvenile | 40.00 | 1632 | 5.18 | 7639 |
| Callorhinchus capensis | 14.00 | 8 | 1.81 | |
| Galeorhinus galeus | 12.00 | 2 | 1.56 | |
| Holohalaelurus regani | 12.00 | 36 | 1.56 | |
| Lophius vomerinus | 8.00 | 8 | 1.04 | 7648 |
| Zeus capensis | 7.00 | 120 | 0.91 | 7640 |
| Sepia australis | 4.64 | | 0.60 | |
| Chelidonichthys capensis | 4.00 | 10 | 0.52 | 7646 |
| Squalus megalops | 2.46 | 6 | 0.32 | |
| Helicolenus dactylopterus | 2.40 | 96 | 0.31 | 7645 |
| Trachurus trachurus | 2.00 | 14 | 0.26 | 7642 |
| Chelidonichthys queketti | 1.74 | 6 | 0.23 | 7647 |
| Coelorinchus simorynchus | 1.32 | 10 | 0.17 | |
| Merluccius paradoxus | 1.20 | 8 | 0.16 | 7637 |
| Todaropsis eblanae | 0.84 | 10 | 0.11 | 7649 |
| Congiopodus spinifer | 0.54 | 4 | 0.07 | |
| Genypterus capensis | 0.54 | 2 | 0.07 | 7644 |
| Cynoglossus zanzibarensis | 0.28 | 4 | 0.04 | 7641 |
| Lolligoncula mercatoris | 0.20 | | 0.03 | |
| Paracallionymus costatus | 0.08 | 20 | 0.01 | |
| Arnoglossus capensis | 0.06 | | 0.01 | |
| Total | 771.50 | | 100.01 | |

PROJECT STATION: 884

DATE: 3/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2823
start stop duration Long E 1445
TIME :15:38:08 16:08:05 30 (min) Purpose code: 3
LOG :9767.08 9768.67 1.57 Area code :
FDEPTH: 203 203 GearCond.code:
BDEPTH: 203 203 Validity code:
Towing dir: 350ø Wire out: 606 m Speed: 30 kn*10

Sorted: Kg Total catch: 619.61 CATCH/HOUR: 1239.22

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Etrumeus whiteheadi | 360.00 | | 29.05 | |
| Lepidopus caudatus | 268.00 | | 21.63 | |
| Thyrsites atun | 194.68 | 172 | 15.71 | 7658 |
| Merluccius capensis | 85.12 | 112 | 6.87 | 7651 |
| Merluccius capensis | 84.00 | 362 | 6.78 | 7650 |
| Merluccius paradoxus | 76.00 | 1664 | 6.13 | 7654 |
| Merluccius paradoxus, juvenile | 46.00 | 2644 | 3.71 | 7655 |
| Sepia australis | 18.00 | | 1.45 | |
| Merluccius paradoxus | 18.00 | 142 | 1.45 | 7653 |
| Zeus capensis | 14.00 | 208 | 1.13 | 7656 |
| Callorhinchus capensis | 14.00 | 8 | 1.13 | |
| Lophius vomerinus | 9.40 | 10 | 0.76 | 7663 |
| Chelidonichthys capensis | 9.00 | 12 | 0.73 | 7661 |
| Merluccius capensis | 8.88 | 2 | 0.72 | 7652 |
| Trachurus trachurus | 8.00 | 46 | 0.65 | 7657 |
| Squalus megalops | 8.00 | 22 | 0.65 | |
| Thyrsites atun | 7.32 | 2 | 0.59 | 7659 |
| Holohalaelurus regani | 4.40 | 16 | 0.36 | |
| Chelidonichthys queketti | 3.02 | 16 | 0.24 | 7662 |
| Todaropsis eblanae | 0.88 | 10 | 0.07 | 7664 |
| Coelorinchus simorynchus | 0.86 | 10 | 0.07 | |
| Arnoglossus capensis | 0.66 | | 0.05 | |
| Helicolenus dactylopterus | 0.58 | 64 | 0.05 | 7660 |
| Paracallionymus costatus | 0.32 | 38 | 0.03 | |
| Emmelichthys nitidus | 0.10 | 4 | 0.01 | |
| Total | 1239.22 | | 100.02 | |

PROJECT STATION: 885

DATE: 4/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2823
start stop duration Long E 1450
TIME :05:30:23 06:00:04 30 (min) Purpose code: 3
LOG :9873.43 9874.93 1.49 Area code :
FDEPTH: 190 193 GearCond.code:
BDEPTH: 190 193 Validity code:
Towing dir: 335ø Wire out: 570 m Speed: 30 kn*10

Sorted: Kg Total catch: 320.75 CATCH/HOUR: 641.50

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 336.00 | 2704 | 52.38 | 7665 |
| Merluccius capensis | 120.00 | 152 | 18.71 | 7666 |
| Thyrsites atun | 94.00 | 80 | 14.65 | 7672 |
| Chelidonichthys capensis | 14.90 | 34 | 2.32 | 7675 |
| Sepia australis | 11.48 | 1044 | 1.79 | |
| Lepidopus caudatus | 10.00 | | 1.56 | |
| Etrumeus whiteheadi | 8.88 | | 1.38 | |
| Holohalaelurus regani | 8.14 | 30 | 1.27 | |
| Merluccius paradoxus, juvenile | 7.60 | 436 | 1.18 | 7668 |
| Merluccius paradoxus | 7.00 | 102 | 1.09 | 7667 |
| Lophius vomerinus | 4.68 | 14 | 0.73 | 7677 |
| Paracallionymus costatus | 4.66 | 406 | 0.73 | |
| Trachurus trachurus | 4.00 | 26 | 0.62 | 7671 |
| Helicolenus dactylopterus | 2.44 | 382 | 0.38 | 7674 |
| Zeus capensis | 2.40 | 70 | 0.37 | 7669 |
| Congiopodus spinifer | 1.42 | 6 | 0.22 | |
| Chelidonichthys queketti | 1.00 | 4 | 0.16 | 7676 |
| Genypterus capensis | 1.00 | 6 | 0.16 | 7673 |
| Todaropsis eblanae | 0.78 | 24 | 0.12 | 7679 |
| Todaropsis eblanae | 0.36 | 8 | 0.06 | 7678 |
| Cynoglossus zanzibarensis | 0.36 | 4 | 0.06 | 7670 |
| Lolligoncula mercatoris | 0.30 | | 0.05 | |
| Bathynectes sp. | 0.10 | 2 | 0.02 | |
| Total | 641.50 | | 100.01 | |

PROJECT STATION: 886

DATE: 4/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2812
start stop duration Long E 1447
TIME :07:47:11 08:17:02 30 (min) Purpose code: 3
LOG :9887.76 9889.24 1.48 Area code :
FDEPTH: 204 203 GearCond.code:
BDEPTH: 204 203 Validity code:
Towing dir: 170ø Wire out: 600 m Speed: 30 kn*10

Sorted: Kg Total catch: 551.64 CATCH/HOUR: 1103.28

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 358.00 | 516 | 32.45 | 7681 |
| Merluccius capensis | 256.00 | 1756 | 23.20 | 7680 |
| Etrumeus whiteheadi | 192.00 | | 17.40 | |
| Merluccius paradoxus, juvenile | 103.00 | 5780 | 9.34 | 7684 |
| Callorhinchus capensis | 67.00 | 48 | 6.07 | |
| Merluccius paradoxus | 34.00 | 730 | 3.08 | 7683 |
| Chelidonichthys capensis | 24.00 | 42 | 2.18 | 7691 |
| Squalus megalops | 16.40 | 44 | 1.49 | |
| Lophius vomerinus | 10.80 | 8 | 0.98 | 7693 |
| Sepia australis | 9.00 | 666 | 0.82 | |
| Holohalaelurus regani | 7.40 | 32 | 0.67 | |
| Thyrsites atun | 6.00 | 4 | 0.54 | 7688 |
| Raja straeleni | 4.40 | 6 | 0.40 | |
| Zeus capensis | 3.62 | 82 | 0.33 | 7685 |
| Merluccius paradoxus | 2.00 | 10 | 0.18 | 7682 |
| Paracallionymus costatus | 1.70 | 160 | 0.15 | |
| Lepidopus caudatus | 1.44 | 26 | 0.13 | |
| Lolligoncula mercatoris | 1.20 | | 0.11 | |
| Todaropsis eblanae | 1.08 | 26 | 0.10 | 7695 |
| Trachurus trachurus | 0.98 | 6 | 0.09 | 7687 |
| Chelidonichthys queketti | 0.90 | 2 | 0.08 | 7692 |
| Genypterus capensis | 0.90 | 2 | 0.08 | 7689 |
| Todaropsis eblanae | 0.62 | 14 | 0.06 | 7694 |
| Helicolenus dactylopterus | 0.52 | 74 | 0.05 | 7690 |
| Cynoglossus zanzibarensis | 0.32 | 4 | 0.03 | 7686 |
| Total | 1103.28 | | 100.01 | |

PROJECT STATION: 887

DATE: 4/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2815
start stop duration Long E 1455
TIME :09:38:15 10:08:03 30 (min) Purpose code: 3
LOG :9896.43 9897.88 1.43 Area code :
FDEPTH: 189 188 GearCond.code:
BDEPTH: 189 188 Validity code:
Towing dir: 40ø Wire out: 570 m Speed: 30 kn*10

Sorted: Kg Total catch: 697.41 CATCH/HOUR: 1394.82

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 830.00 | 7278 | 59.51 | 7696 |
| Etrumeus whiteheadi | 418.00 | | 29.97 | |
| Chelidonichthys capensis | 63.00 | 216 | 4.52 | 7703 |
| Merluccius capensis | 40.00 | 56 | 2.87 | 7697 |
| Callorhinchus capensis | 26.00 | 16 | 1.86 | |
| Thyrsites atun | 4.00 | 2 | 0.29 | 7700 |
| Lophius vomerinus | 2.80 | 2 | 0.20 | 7705 |
| Chelidonichthys queketti | 2.60 | 18 | 0.19 | 7704 |
| Raja straeleni | 2.00 | 2 | 0.14 | |
| Trachurus trachurus | 1.60 | 14 | 0.11 | 7699 |
| Zeus capensis | 1.36 | 40 | 0.10 | 7698 |
| Paracallionymus costatus | 0.82 | | 0.06 | |
| Todaropsis eblanae | 0.80 | 14 | 0.06 | 7707 |
| Todaropsis eblanae | 0.64 | 10 | 0.05 | 7706 |
| Genypterus capensis | 0.48 | 4 | 0.03 | 7701 |
| Sepia australis | 0.46 | 34 | 0.03 | |
| Helicolenus dactylopterus | 0.16 | 16 | 0.01 | 7702 |
| Lepidopus caudatus | 0.10 | 2 | 0.01 | |
| Total | 1394.82 | | 100.01 | |

PROJECT STATION: 888

DATE: 4/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2815
start stop duration Long E 1507
TIME :11:44:15 12:14:24 30 (min) Purpose code: 3
LOG :9909.97 9911.51 1.52 Area code :
FDEPTH: 178 181 GearCond.code:
BDEPTH: 178 181 Validity code:
Towing dir: 273ø Wire out: 549 m Speed: 30 kn*10

Sorted: Kg Total catch: 572.85 CATCH/HOUR: 1145.70

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Etrumeus whiteheadi | 658.00 | | 57.43 | |
| Merluccius capensis | 398.00 | 4058 | 34.74 | 7708 |
| Thyrsites atun | 34.00 | 10 | 2.97 | 7715 |
| Sardinops ocellatus | 30.00 | | 2.62 | |
| Chelidonichthys capensis | 7.40 | 26 | 0.65 | 7718 |
| Merluccius capensis | 3.20 | 10 | 0.28 | 7709 |
| Callorhinchus capensis | 3.20 | 2 | 0.28 | |
| Raja straeleni | 2.60 | 2 | 0.23 | |
| Zeus capensis | 1.98 | 68 | 0.17 | 7712 |
| Mustelus palumbes | 1.62 | 2 | 0.14 | |
| Helicolenus dactylopterus | 1.60 | 152 | 0.14 | 7717 |
| Todaropsis eblanae | 0.92 | 14 | 0.08 | 7722 |
| Lophius vomerinus | 0.80 | 2 | 0.07 | 7720 |
| Chelidonichthys queketti | 0.60 | 4 | 0.05 | 7719 |
| Merluccius capensis, juveniles | 0.44 | 12 | 0.04 | 7710 |
| Sepia australis | 0.26 | 24 | 0.02 | |
| Merluccius paradoxus, juvenile | 0.24 | 8 | 0.02 | 7711 |
| Todaropsis eblanae | 0.18 | 2 | 0.02 | 7721 |
| Cynoglossus zanzibarensis | 0.16 | 2 | 0.01 | 7713 |
| Congiopodus spinifer | 0.14 | 2 | 0.01 | |
| Paracallionymus costatus | 0.10 | 18 | 0.01 | |
| Genypterus capensis | 0.08 | 2 | 0.01 | 7716 |
| Sufflogobius bibarbatus | 0.08 | 20 | 0.01 | |
| Trachurus trachurus | 0.06 | 2 | 0.01 | 7714 |
| Lolligoncula mercatoris | 0.02 | | | |
| Lampanyctodes hectoris | 0.02 | | | |
| Maurolicus muelleri | 0.00 | | | |
| Total | 1145.70 | | 100.01 | |

PROJECT STATION: 889

DATE: 4/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2819
start stop duration Long E 1455
TIME :14:30:37 15:00:28 30 (min) Purpose code: 3
LOG :9927.32 9928.84 1.51 Area code :
FDEPTH: 187 184 GearCond.code:
BDEPTH: 187 184 Validity code:
Towing dir: 112ø Wire out: 561 m Speed: 30 kn*10

Sorted: Kg Total catch: 479.24 CATCH/HOUR: 958.48

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 526.00 | 4476 | 54.88 | 7723 |
| Etrumeus whiteheadi | 366.00 | | 38.19 | |
| Chelidonichthys capensis | 24.00 | 78 | 2.50 | 7731 |
| Merluccius capensis | 22.00 | 34 | 2.30 | 7724 |
| Callorhinchus capensis | 6.00 | 4 | 0.63 | |
| Chelidonichthys queketti | 5.00 | 34 | 0.52 | 7732 |
| Zeus capensis | 3.24 | 98 | 0.34 | 7727 |
| Trachurus trachurus | 2.00 | 20 | 0.21 | 7728 |
| Holohalaelurus regani | 1.00 | 4 | 0.10 | |
| Todaropsis eblanae | 0.98 | 14 | 0.10 | 7734 |
| Sepia australis | 0.66 | 68 | 0.07 | |
| Genypterus capensis | 0.38 | 2 | 0.04 | 7729 |
| Merluccius capensis, juveniles | 0.34 | 6 | 0.04 | 7725 |
| Lolligoncula mercatoris | 0.30 | | 0.03 | |
| Merluccius paradoxus, juvenile | 0.28 | 10 | 0.03 | 7726 |
| Todaropsis eblanae | 0.16 | 4 | 0.02 | 7733 |
| Helicolenus dactylopterus | 0.08 | 20 | 0.01 | 7730 |
| Bathynectes sp. | 0.06 | 2 | 0.01 | |
| Total | 958.48 | | 100.02 | |

PROJECT STATION: 890

DATE: 4/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2825
start stop duration Long E 1456
TIME :16:08:37 16:38:19 30 (min) Purpose code: 3
LOG :9937.23 9938.79 1.56 Area code :
FDEPTH: 182 182 GearCond.code:
BDEPTH: 182 182 Validity code:
Towing dir: 360ø Wire out: 551 m Speed: 30 kn*10

Sorted: Kg Total catch: 550.87 CATCH/HOUR: 1101.74

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 492.00 | 3908 | 44.66 | 7735 |
| Etrumeus whiteheadi | 404.00 | | 36.67 | |
| Thyrsites atun | 82.00 | 62 | 7.44 | 7742 |
| Merluccius capensis | 72.00 | 108 | 6.54 | 7736 |
| Chelidonichthys capensis | 22.00 | 76 | 2.00 | 7744 |
| Sepia australis | 10.32 | | 0.94 | |
| Callorhinchus capensis | 5.00 | 4 | 0.45 | |
| Zeus capensis | 3.20 | 106 | 0.29 | 7739 |
| Helicolenus dactylopterus | 2.88 | 442 | 0.26 | 7743 |
| Chelidonichthys queketti | 2.50 | 18 | 0.23 | 7745 |
| Merluccius paradoxus, juvenile | 1.36 | 48 | 0.12 | 7738 |
| Congiopodus spinifer | 1.26 | | 0.11 | |
| Paracallionymus costatus | 1.12 | 198 | 0.10 | |
| Lophius vomerinus | 0.84 | 2 | 0.08 | 7746 |
| Trachurus trachurus | 0.40 | 4 | 0.04 | 7741 |
| Cynoglossus zanzibarensis | 0.30 | 6 | 0.03 | 7740 |
| Merluccius capensis, juveniles | 0.22 | 6 | 0.02 | 7737 |
| Todaropsis eblanae | 0.18 | 8 | 0.02 | 7747 |
| Lepidopus caudatus | 0.12 | 2 | 0.01 | |
| Bathynectes sp. | 0.04 | 2 | | |
| Total | 1101.74 | | 100.01 | |

PROJECT STATION: 891

DATE: 5/ 9/04 GEAR TYPE: BT No:15 POSITION:Lat S 2921
start stop duration Long E 1429
TIME :05:28:47 05:58:16 29 (min) Purpose code: 3
LOG : 23.15 24.70 1.54 Area code :
FDEPTH: 543 545 GearCond.code:
BDEPTH: 543 545 Validity code:
Towing dir: 355ø Wire out:1570 m Speed: 30 kn*10

Sorted: Kg Total catch: 123.24 CATCH/HOUR: 254.98

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 60.00 | 83 | 23.53 | 7749 |
| Funchalia woodwardi | 35.17 | | 13.79 | |
| Coelorinchus braueri | 31.03 | | 12.17 | |
| Chaceon sp. | 27.93 | 62 | 10.95 | |
| Merluccius paradoxus | 26.90 | 122 | 10.55 | 7748 |
| Bathyraja smithii | 19.66 | 4 | 7.71 | |
| Nezumia sp. | 16.55 | | 6.49 | |
| Etmopterus sp. | 11.19 | 577 | 4.39 | |
| Raja confundens | 5.13 | 10 | 2.01 | |
| Todarodes angolensis - females | 2.69 | 2 | 1.05 | 7752 |
| Selachophidium guentheri | 2.67 | 35 | 1.05 | |
| Notacanthus sexspinis | 2.65 | | 1.04 | |
| Psychrolutes macrocephalus | 2.07 | 23 | 0.81 | |
| Photichthys argenteus | 1.92 | | 0.75 | |
| Rossia enigmatica | 1.49 | 112 | 0.58 | |
| Helicolenus dactylopterus | 1.37 | 4 | 0.54 | 7750 |
| Lycoteuthis diadema * | 1.06 | 31 | 0.42 | |
| Lophius vomerinus | 1.01 | 6 | 0.40 | 7751 |
| Holohalaelurus regani | 0.93 | 4 | 0.36 | |
| Malacocephalus laevis | 0.70 | 2 | 0.27 | |
| Coelorinchus matamua | 0.58 | 4 | 0.23 | |
| Bassanago albescens | 0.52 | 4 | 0.20 | |
| Stereomastis sp. | 0.35 | 74 | 0.14 | |
| Myxine capensis | 0.35 | 6 | 0.14 | |
| MARVE01 | 0.25 | | 0.10 | |
| Tripterophycis gilchristi | 0.23 | 8 | 0.09 | |
| Pasiphaea sp. | 0.21 | | 0.08 | |
| Plesionika martia | 0.21 | | 0.08 | |
| Hoplostethus sp. | 0.12 | 6 | 0.05 | |
| Symbolophorus boops | 0.04 | 4 | 0.02 | |
| Stoloteuthis sp. | 0.00 | 2 | | |
| Total | 254.98 | | 99.99 | |

PROJECT STATION: 892

DATE: 5/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2914
start stop duration Long E 1429
TIME :07:42:31 08:12:04 30 (min) Purpose code: 3
LOG : 32.09 33.63 1.52 Area code :
FDEPTH: 451 451 GearCond.code:
BDEPTH: 451 451 Validity code:
Towing dir: 355ø Wire out:1320 m Speed: 30 kn*10

Sorted: Kg Total catch: 971.26 CATCH/HOUR: 1942.52

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 1816.00 | 9002 | 93.49 | 7754 |
| Merluccius paradoxus | 38.00 | 50 | 1.96 | 7755 |
| Centrolophus niger | 26.00 | 4 | 1.34 | |
| Merluccius capensis | 20.00 | 8 | 1.03 | 7753 |
| Raja straeleni | 6.00 | 2 | 0.31 | |
| Coelorinchus simorynchus | 5.80 | 142 | 0.30 | |
| Genypterus capensis | 5.60 | 4 | 0.29 | 7756 |
| Lepidopus caudatus | 3.20 | 6 | 0.16 | |
| Bassanago albescens | 3.00 | 6 | 0.15 | |
| Helicolenus dactylopterus | 3.00 | 16 | 0.15 | 7757 |
| Raja confundens | 2.50 | 2 | 0.13 | |
| Lycoteuthis diadema * | 2.00 | 44 | 0.10 | |
| Squalus megalops | 2.00 | | 0.10 | |
| Photichthys argenteus | 1.84 | | 0.09 | |
| Todarodes angolensis - males | 1.74 | 2 | 0.09 | 7759 |
| Todarodes angolensis - females | 1.68 | 2 | 0.09 | 7760 |
| Holohalaelurus regani | 1.32 | 2 | 0.07 | |
| Rossia enigmatica | 1.16 | 48 | 0.06 | |
| Chelidonichthys capensis | 0.50 | 2 | 0.03 | 7758 |
| Epigonus sp. | 0.36 | 18 | 0.02 | |
| Malacocephalus laevis | 0.34 | 2 | 0.02 | |
| MARVE01 | 0.26 | 20 | 0.01 | |
| Paracallionymus costatus | 0.06 | 12 | | |
| Tripterophycis gilchristi | 0.06 | 4 | | |
| MYCTOPHIDAE | 0.06 | 6 | | |
| Selachophidium guentheri | 0.02 | 22 | | |
| Coelorinchus braueri | 0.02 | 4 | | |
| Total | 1942.52 | | 99.99 | |

PROJECT STATION: 893
DATE: 5/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2903
start stop duration Long E 1425
TIME :10:00:20 10:30:11 30 (min) Purpose code: 3
LOG : 44.05 45.55 1.48 Area code :
FDEPTH: 460 478 GearCond.code:
BDEPTH: 460 478 Validity code:
Towing dir: 350ø Wire out:1450 m Speed: 30 kn*10

Sorted: Kg Total catch: 359.10 CATCH/HOUR: 718.20

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 418.00 | 644 | 58.20 | 7762 |
| Merluccius paradoxus | 218.00 | 1020 | 30.35 | 7761 |
| Coelorinchus simorynchus | 26.00 | | 3.62 | |
| Genypterus capensis | 16.54 | 4 | 2.30 | 7764 |
| Genypterus capensis | 15.46 | 12 | 2.15 | 7763 |
| Helicolenus dactylopterus | 14.00 | 50 | 1.95 | 7765 |
| Raja confundens | 2.00 | 2 | 0.28 | |
| Photichthys argenteus | 1.48 | | 0.21 | |
| Lycoteuthis diadema * | 1.16 | 66 | 0.16 | |
| Notacanthus sexspinis | 1.16 | 14 | 0.16 | |
| Rossia enigmatica | 0.82 | 32 | 0.11 | |
| Tripterophycis gilchristi | 0.58 | 22 | 0.08 | |
| Bassanago albescens | 0.54 | 2 | 0.08 | |
| Cyttus traversi | 0.50 | 2 | 0.07 | |
| Selachophidium guentheri | 0.42 | 16 | 0.06 | |
| Epigonus sp. | 0.38 | 16 | 0.05 | |
| MARVE01 | 0.34 | 22 | 0.05 | |
| Symbolophorus boops | 0.24 | 20 | 0.03 | |
| Bathophilus longipinnis | 0.20 | 4 | 0.03 | |
| Etmopterus sp. | 0.20 | 16 | 0.03 | |
| Malacocephalus laevis | 0.08 | 2 | 0.01 | |
| Diaphus effulgens | 0.06 | 4 | 0.01 | |
| Paracallionymus costatus | 0.02 | 2 | | |
| Physiculus capensis | 0.02 | 2 | | |
| Hoplostethus mediterraneus | 0.00 | | | |
| Total | 718.20 | | 99.99 | |

PROJECT STATION: 894
DATE: 5/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2902
start stop duration Long E 1428
TIME :12:52:15 13:22:14 30 (min) Purpose code: 3
LOG : 54.38 55.99 1.59 Area code :
FDEPTH: 329 334 GearCond.code:
BDEPTH: 329 334 Validity code:
Towing dir: 345ø Wire out: 985 m Speed: 31 kn*10

Sorted: Kg Total catch: 713.70 CATCH/HOUR: 1427.40

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 706.00 | 6866 | 49.46 | 7767 |
| Epigonus sp. | 408.00 | | 28.58 | |
| Helicolenus dactylopterus | 70.00 | 386 | 4.90 | 7773 |
| Thyrsites atun | 70.00 | 26 | 4.90 | 7772 |
| Merluccius paradoxus | 44.00 | 64 | 3.08 | 7768 |
| Coelorinchus simorynchus | 40.00 | | 2.80 | |
| Malacocephalus laevis | 17.00 | 44 | 1.19 | |
| Holohalaelurus regani | 15.40 | 44 | 1.08 | |
| Brama brama | 10.00 | 4 | 0.70 | 7771 |
| Todaropsis eblanae | 6.34 | 46 | 0.44 | 7775 |
| Callorhinchus capensis | 6.00 | 2 | 0.42 | |
| Zeus capensis | 5.80 | 6 | 0.41 | 7770 |
| Lophius vomerinus | 5.52 | 2 | 0.39 | 7774 |
| Todaropsis eblanae | 4.26 | 28 | 0.30 | 7776 |
| Todarodes angolensis - females | 4.20 | 4 | 0.29 | 7778 |
| Merluccius capensis | 4.00 | 2 | 0.28 | 7766 |
| Torpedo nobiliana | 3.00 | 2 | 0.21 | |
| Cyttus traversi | 2.50 | 14 | 0.18 | |
| Todarodes angolensis - males | 2.00 | 4 | 0.14 | 7777 |
| Merluccius paradoxus, juvenile | 2.00 | 48 | 0.14 | 7769 |
| Cynoglossus zanzibarensis | 0.56 | | 0.04 | |
| Galeus polli | 0.52 | 6 | 0.04 | |
| Rossia enigmatica | 0.12 | | 0.01 | |
| Lepidopus caudatus | 0.08 | 2 | 0.01 | |
| Paracallionymus costatus | 0.06 | 4 | | |
| Rochinia sp. | 0.02 | 4 | | |
| Photichthys argenteus | 0.02 | 2 | | |
| Total | 1427.40 | | 99.99 | |

PROJECT STATION: 895
DATE: 5/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2854
start stop duration Long E 1424
TIME :15:08:05 15:38:03 30 (min) Purpose code: 3
LOG : 64.08 65.54 1.41 Area code :
FDEPTH: 436 431 GearCond.code:
BDEPTH: 436 431 Validity code:
Towing dir: 348ø Wire out: 985 m Speed: 31 kn*10

Sorted: Kg Total catch: 429.07 CATCH/HOUR: 858.14

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 436.00 | 1930 | 50.81 | 7779 |
| Merluccius paradoxus | 326.00 | 652 | 37.99 | 7780 |
| Helicolenus dactylopterus | 28.00 | 76 | 3.26 | 7783 |
| Coelorinchus simorynchus | 28.00 | | 3.26 | |
| Genypterus capensis | 22.00 | 16 | 2.56 | 7782 |
| Raja confundens | 6.00 | 4 | 0.70 | |
| Scyliorhinus capensis | 4.54 | 2 | 0.53 | |
| Hydrolagus africanus | 2.30 | 2 | 0.27 | |
| Zeus capensis | 1.10 | 2 | 0.13 | 7781 |
| Todarodes angolensis - males | 0.88 | 2 | 0.10 | 7784 |
| Rossia enigmatica | 0.76 | 24 | 0.09 | |
| Epigonus sp. | 0.42 | 12 | 0.05 | |
| Symbolophorus boops | 0.36 | 12 | 0.04 | |
| Malacocephalus laevis | 0.34 | 10 | 0.04 | |
| Diaphus effulgens | 0.34 | 22 | 0.04 | |
| Lycoteuthis diadema * | 0.32 | 22 | 0.04 | |
| MYCTOPHIDAE | 0.20 | | 0.02 | |
| Tripterophycis gilchristi | 0.14 | 8 | 0.02 | |
| Notacanthus sexspinis | 0.14 | 2 | 0.02 | |
| Bathophilus longipinnis | 0.14 | | 0.02 | |
| Nezumia sp. | 0.10 | 6 | 0.01 | |
| Rochinia sp. | 0.02 | 2 | | |
| MARVE01 | 0.02 | 4 | | |
| Diaphus sp. | 0.02 | 4 | | |
| Total | 858.14 | | 100.00 | |

PROJECT STATION: 896
DATE: 6/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2922
start stop duration Long E 1456
TIME :12:24:22 12:54:21 30 (min) Purpose code: 3
LOG : 151.22 152.76 1.51 Area code :
FDEPTH: 197 197 GearCond.code:
BDEPTH: 197 197 Validity code:
Towing dir: 330ø Wire out: 616 m Speed: 30 kn*10

Sorted: Kg Total catch: 486.26 CATCH/HOUR: 972.52

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Trachurus trachurus | 528.00 | 6804 | 54.29 | 7789 |
| Lepidopus caudatus | 170.00 | | 17.48 | |
| Thyrsites atun | 132.00 | 100 | 13.57 | 7790 |
| Merluccius capensis | 78.30 | 192 | 8.05 | 7785 |
| Chelidonichthys capensis | 28.00 | 42 | 2.88 | 7792 |
| Lophius vomerinus | 6.60 | 6 | 0.68 | 7794 |
| Zeus capensis | 6.48 | 68 | 0.67 | 7788 |
| Emmelichthys nitidus | 4.26 | 98 | 0.44 | |
| Etrumeus whiteheadi | 4.00 | 56 | 0.41 | |
| Merluccius capensis | 3.70 | 2 | 0.38 | 7786 |
| Chelidonichthys queketti | 3.00 | 18 | 0.31 | 7793 |
| Callorhinchus capensis | 2.80 | 2 | 0.29 | |
| Holohalaelurus regani | 1.32 | 6 | 0.14 | |
| Sepia australis | 0.92 | | 0.09 | |
| Todarodes angolensis - females | 0.82 | 2 | 0.08 | 7797 |
| Congiopodus spinifer | 0.74 | 4 | 0.08 | |
| Squalus megalops | 0.62 | 2 | 0.06 | |
| Todaropsis eblanae | 0.42 | 6 | 0.04 | 7795 |
| Todaropsis eblanae | 0.36 | 10 | 0.04 | 7796 |
| Paracallionymus costatus | 0.16 | 22 | 0.02 | |
| Arnoglossus capensis | 0.02 | 2 | | |
| Helicolenus dactylopterus | 0.00 | 10 | | 7791 |
| Merluccius paradoxus, juvenile | 0.00 | 2 | | 7787 |
| Total | 972.52 | | 100.00 | |

PROJECT STATION: 897
DATE: 6/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2918
start stop duration Long E 1504
TIME :15:05:05 15:35:15 30 (min) Purpose code: 3
LOG : 164.21 165.75 1.53 Area code :
FDEPTH: 174 180 GearCond.code:
BDEPTH: 174 180 Validity code:
Towing dir: 330ø Wire out: 539 m Speed: 30 kn*10

Sorted: Kg Total catch: 156.60 CATCH/HOUR: 313.20

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 104.00 | 150 | 33.21 | 7798 |
| Etrumeus whiteheadi | 82.00 | | 26.18 | |
| Thyrsites atun | 23.72 | 22 | 7.57 | 7801 |
| Zeus capensis | 22.00 | 214 | 7.02 | 7799 |
| Thyrsites atun | 18.28 | 36 | 5.84 | 7800 |
| Chelidonichthys capensis | 13.00 | 36 | 4.15 | 7803 |
| Callorhinchus capensis | 10.00 | 8 | 3.19 | |
| Lophius vomerinus | 8.00 | 8 | 2.55 | 7805 |
| Congiopodus torvus | 8.00 | 6 | 2.55 | |
| Squalus megalops | 6.84 | 26 | 2.18 | |
| Chelidonichthys queketti | 6.00 | 46 | 1.92 | 7804 |
| Holohalaelurus regani | 6.00 | 26 | 1.92 | |
| Lepidopus caudatus | 1.58 | 20 | 0.50 | |
| Helicolenus dactylopterus | 1.02 | 248 | 0.33 | 7802 |
| Scyliorhinus capensis | 0.90 | 6 | 0.29 | |
| Todaropsis eblanae | 0.72 | 8 | 0.23 | 7806 |
| Todaropsis eblanae | 0.58 | 4 | 0.19 | 7807 |
| Congiopodus spinifer | 0.32 | 2 | 0.10 | |
| Sepia australis | 0.24 | 6 | 0.08 | |
| Total | 313.20 | | 100.00 | |

PROJECT STATION: 898
DATE: 7/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2910
start stop duration Long E 1530
TIME :05:19:23 05:49:04 30 (min) Purpose code: 3
LOG : 244.94 246.48 1.53 Area code :
FDEPTH: 184 183 GearCond.code:
BDEPTH: 184 183 Validity code:
Towing dir: 350ø Wire out: 570 m Speed: 30 kn*10

Sorted: Kg Total catch: 200.41 CATCH/HOUR: 400.82

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 110.40 | 3134 | 27.54 | 7811 |
| Merluccius paradoxus, juvenile | 72.00 | 4650 | 17.96 | 7812 |
| Merluccius capensis | 64.00 | 350 | 15.97 | 7808 |
| Merluccius capensis | 40.00 | 66 | 9.98 | 7809 |
| Sepia australis | 33.00 | 2870 | 8.23 | |
| Chelidonichthys capensis | 18.00 | 44 | 4.49 | 7819 |
| Merluccius paradoxus | 16.40 | 112 | 4.09 | 7810 |
| Helicolenus dactylopterus | 12.00 | 168 | 2.99 | 7818 |
| Callorhinchus capensis | 6.60 | 2 | 1.65 | |
| Lophius vomerinus | 6.00 | 6 | 1.50 | 7821 |
| Thyrsites atun | 5.00 | 2 | 1.25 | 7816 |
| Holohalaelurus regani | 4.40 | 24 | 1.10 | |
| Mustelus palumbes | 3.00 | 2 | 0.75 | |
| Todaropsis eblanae | 2.10 | 28 | 0.52 | 7822 |
| Cynoglossus zanzibarensis | 1.72 | 50 | 0.43 | 7814 |
| Coelorinchus simorynchus | 1.56 | 30 | 0.39 | |
| Chelidonichthys queketti | 1.28 | 8 | 0.32 | 7820 |
| Trachurus trachurus | 0.94 | 8 | 0.23 | 7815 |
| Genypterus capensis | 0.88 | 6 | 0.22 | 7817 |
| Zeus capensis | 0.66 | 2 | 0.16 | 7813 |
| Todaropsis eblanae | 0.36 | 6 | 0.09 | 7823 |
| Paracallionymus costatus | 0.36 | 58 | 0.09 | |
| Lepidopus caudatus | 0.16 | 6 | 0.04 | |
| Total | 400.82 | | 99.99 | |

PROJECT STATION: 899

DATE: 7/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2903
start stop duration Long E 1542
TIME :07:45:21 08:15:44 30 (min) Purpose code: 3
LOG : 260.37 261.83 1.46 Area code :
FDEPTH: 179 179 GearCond.code:
BDEPTH: 179 179 Validity code:
Towing dir: 65ø Wire out: 570 m Speed: 30 kn*10

Sorted: Kg Total catch: 275.84 CATCH/HOUR: 551.68

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 212.00 | 1740 | 38.43 | 7824 |
| Merluccius paradoxus | 90.00 | 2358 | 16.31 | 7826 |
| Merluccius paradoxus, juvenile | 57.20 | 3828 | 10.37 | 7827 |
| Sepia australis | 52.02 | 5780 | 9.43 | |
| Merluccius capensis | 50.00 | 100 | 9.06 | 7825 |
| Chelidonichthys capensis | 26.00 | 74 | 4.71 | 7832 |
| Callorhinchus capensis | 22.00 | 8 | 3.99 | |
| Thyrsites atun | 14.00 | 6 | 2.54 | 7829 |
| Helicolenus dactylopterus | 6.60 | 488 | 1.20 | 7831 |
| Raja straeleni | 6.00 | 2 | 1.09 | |
| Holohalaelurus regani | 5.80 | | 1.05 | |
| Paracallionymus costatus | 5.02 | 310 | 0.91 | |
| Todaropsis eblanae | 1.60 | 22 | 0.29 | 7835 |
| Todaropsis eblanae | 1.02 | 26 | 0.18 | 7836 |
| Cynoglossus zanzibarensis | 1.02 | 28 | 0.18 | 7828 |
| Lophius vomerinus | 0.52 | 6 | 0.09 | 7834 |
| Genypterus capensis | 0.52 | 8 | 0.09 | 7830 |
| Chelidonichthys queketti | 0.20 | 2 | 0.04 | 7833 |
| Coelorinchus simorynchus | 0.16 | 4 | 0.03 | |
| Total | 551.68 | | 99.99 | |

PROJECT STATION: 900

DATE: 7/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2900
start stop duration Long E 1550
TIME :09:23:25 09:53:05 30 (min) Purpose code: 3
LOG : 268.79 270.28 1.33 Area code :
FDEPTH: 176 175 GearCond.code:
BDEPTH: 176 175 Validity code:
Towing dir: 65ø Wire out: 570 m Speed: 30 kn*10

Sorted: Kg Total catch: 178.05 CATCH/HOUR: 356.10

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 186.00 | 1498 | 52.23 | 7837 |
| Sepia australis | 78.00 | 3840 | 21.90 | |
| Merluccius paradoxus, juvenile | 23.20 | 1264 | 6.52 | 7840 |
| Merluccius paradoxus | 20.00 | 482 | 5.62 | 7839 |
| Chelidonichthys capensis | 16.00 | 44 | 4.49 | 7846 |
| Merluccius capensis | 12.00 | 26 | 3.37 | 7838 |
| Callorhinchus capensis | 12.00 | 6 | 3.37 | |
| Coelorinchus simorynchus | 3.00 | 72 | 0.84 | |
| Helicolenus dactylopterus | 2.38 | 126 | 0.67 | 7845 |
| Thyrsites atun | 1.40 | 4 | 0.39 | 7843 |
| Todaropsis eblanae | 0.52 | 14 | 0.15 | 7848 |
| Paracallionymus costatus | 0.50 | 34 | 0.14 | |
| Cynoglossus zanzibarensis | 0.40 | 10 | 0.11 | 7842 |
| Genypterus capensis | 0.38 | 2 | 0.11 | 7844 |
| Todaropsis eblanae | 0.18 | 6 | 0.05 | 7847 |
| Holohalaelurus regani | 0.08 | 4 | 0.02 | |
| Lolligoncula mercatoris | 0.04 | | 0.01 | |
| Zeus capensis | 0.02 | 2 | 0.01 | 7841 |
| Total | 356.10 | | 100.00 | |

PROJECT STATION: 901

DATE: 7/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2855
start stop duration Long E 1605
TIME :11:54:59 12:24:34 30 (min) Purpose code: 3
LOG : 284.90 286.42 1.51 Area code :
FDEPTH: 151 150 GearCond.code:
BDEPTH: 151 150 Validity code:
Towing dir: 315ø Wire out: 480 m Speed: 30 kn*10

Sorted: Kg Total catch: 291.87 CATCH/HOUR: 583.74

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 372.00 | 3534 | 63.73 | 7849 |
| Sepia australis | 101.40 | | 17.37 | |
| JELLY | 46.80 | | 8.02 | |
| Etrumeus whiteheadi | 35.00 | | 6.00 | |
| Merluccius paradoxus, juvenile | 17.20 | 862 | 2.95 | 7851 |
| Sufflogobius bibarbatus | 4.20 | 1576 | 0.72 | |
| Chelidonichthys capensis | 2.00 | 6 | 0.34 | 7855 |
| Merluccius capensis | 1.20 | 2 | 0.21 | 7850 |
| Lolligoncula mercatoris | 1.16 | | 0.20 | |
| Cynoglossus zanzibarensis | 0.62 | 18 | 0.11 | 7852 |
| Trachurus trachurus | 0.60 | 6 | 0.10 | 7853 |
| Todaropsis eblanae | 0.52 | 6 | 0.09 | 7857 |
| Paracallionymus costatus | 0.38 | 20 | 0.07 | |
| Lophius vomerinus | 0.34 | 2 | 0.06 | 7856 |
| Helicolenus dactylopterus | 0.14 | 14 | 0.02 | 7854 |
| Squilla sp. | 0.08 | 4 | 0.01 | |
| Todaropsis eblanae | 0.08 | 2 | 0.01 | 7858 |
| Maurolicus muelleri | 0.02 | 24 | | |
| Total | 583.74 | | 100.01 | |

PROJECT STATION: 902

DATE: 7/ 9/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2848
start stop duration Long E 1620
TIME :14:22:33 14:52:25 30 (min) Purpose code: 3
LOG : 302.86 304.36 1.50 Area code :
FDEPTH: 78 85 GearCond.code:
BDEPTH: 78 85 Validity code:
Towing dir: 150ø Wire out: 275 m Speed: 30 kn*10

Sorted: Kg Total catch: 429.70 CATCH/HOUR: 859.40

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 528.00 | 4596 | 61.44 | 7859 |
| JELLY | 192.00 | | 22.34 | |
| Chelidonichthys capensis | 92.58 | 462 | 10.77 | 7865 |
| Merluccius capensis | 18.00 | 44 | 2.09 | 7860 |
| Callorhinchus capensis | 8.00 | 4 | 0.93 | |
| Chelidonichthys capensis | 5.42 | 2 | 0.63 | 7866 |
| Trachurus trachurus | 5.08 | 50 | 0.59 | 7864 |
| Sufflogobius bibarbatus | 4.26 | 718 | 0.50 | |
| Lolligoncula mercatoris | 2.08 | 712 | 0.24 | |
| Austroglossus microlepis | 1.70 | 10 | 0.20 | 7862 |
| Sepia australis | 1.02 | 86 | 0.12 | |
| Merluccius capensis, juveniles | 0.94 | 48 | 0.11 | 7861 |
| Paracallionymus costatus | 0.32 | 2 | 0.04 | |
| Cynoglossus zanzibarensis | 0.00 | 2 | | 7863 |
| Total | 859.40 | | 100.00 | |

## Annex 2 Hake catches in kg per hour by trawl station.

| Station | Lat. | Long. | Depth | Juvenile deepw. hake | Deepwater hake | Juvenile Cape hake | Cape hake |
|---|---|---|---|---|---|---|---|
| 856 | -27.67 | 14.53 | 447 | 0.0 | 544.0 | 0.0 | 0.0 |
| 857 | -27.55 | 14.68 | 341 | 0.0 | 882.0 | 0.0 | 14.0 |
| 858 | -27.55 | 14.80 | 322 | 0.0 | 402.6 | 0.0 | 38.7 |
| 859 | -27.50 | 14.97 | 242 | 0.0 | 90.0 | 0.0 | 66.0 |
| 860 | -27.40 | 15.08 | 162 | 2.0 | 0.0 | 0.0 | 150.0 |
| 862 | -27.78 | 15.33 | 132 | 0.2 | 0.0 | 0.0 | 337.2 |
| 863 | -27.88 | 15.10 | 165 | 0.0 | 0.0 | 0.0 | 132.0 |
| 864 | -28.00 | 15.05 | 182 | 0.1 | 0.0 | 0.0 | 541.2 |
| 865 | -28.05 | 14.87 | 198 | 7.2 | 0.0 | 0.0 | 308.0 |
| 866 | -28.12 | 14.75 | 204 | 122.0 | 0.0 | 0.0 | 524.0 |
| 867 | -28.02 | 14.65 | 351 | 0.0 | 584.0 | 0.0 | 4.8 |
| 868 | -28.05 | 14.60 | 456 | 0.0 | 238.0 | 0.0 | 0.0 |
| 869 | -28.15 | 14.55 | 386 | 0.0 | 786.0 | 0.0 | 16.0 |
| 870 | -28.17 | 14.52 | 467 | 0.0 | 420.0 | 0.0 | 16.0 |
| 871 | -28.17 | 14.47 | 562 | 0.0 | 84.0 | 0.0 | 0.0 |
| 872 | -28.68 | 14.37 | 452 | 0.0 | 1154.0 | 0.0 | 0.0 |
| 873 | -28.72 | 14.42 | 352 | 0.0 | 1242.9 | 0.0 | 57.9 |
| 874 | -28.58 | 14.33 | 555 | 0.0 | 108.0 | 0.0 | 0.0 |
| 875 | -28.55 | 14.40 | 450 | 0.0 | 1818.0 | 0.0 | 0.0 |
| 876 | -28.55 | 14.42 | 371 | 0.0 | 821.8 | 0.0 | 2.7 |
| 877 | -28.42 | 14.43 | 420 | 0.0 | 1748.0 | 0.0 | 0.0 |
| 878 | -28.67 | 14.60 | 177 | 0.0 | 0.0 | 0.0 | 41.4 |
| 879 | -28.58 | 14.77 | 202 | 18.0 | 43.5 | 0.0 | 40.0 |
| 880 | -28.48 | 14.63 | 170 | 0.0 | 0.0 | 0.0 | 14.0 |
| 881 | -28.35 | 14.63 | 176 | 0.0 | 0.0 | 0.0 | 18.0 |
| 882 | -28.30 | 14.72 | 207 | 2.1 | 0.0 | 0.0 | 316.0 |
| 883 | -28.42 | 14.75 | 203 | 40.0 | 61.4 | 0.0 | 218.0 |
| 884 | -28.38 | 14.75 | 203 | 46.0 | 94.0 | 0.0 | 178.0 |
| 885 | -28.38 | 14.83 | 192 | 7.6 | 7.0 | 0.0 | 456.0 |
| 886 | -28.20 | 14.78 | 204 | 103.0 | 36.0 | 0.0 | 614.0 |
| 887 | -28.25 | 14.92 | 189 | 0.0 | 0.0 | 0.0 | 870.0 |
| 888 | -28.25 | 15.12 | 180 | 0.2 | 0.0 | 0.4 | 401.2 |
| 889 | -28.32 | 14.92 | 186 | 0.3 | 0.0 | 0.3 | 548.0 |
| 890 | -28.42 | 14.93 | 182 | 1.4 | 0.0 | 0.2 | 564.0 |
| 891 | -29.35 | 14.48 | 544 | 0.0 | 86.9 | 0.0 | 0.0 |
| 892 | -29.23 | 14.48 | 451 | 0.0 | 1854.0 | 0.0 | 20.0 |
| 893 | -29.05 | 14.42 | 469 | 0.0 | 636.0 | 0.0 | 0.0 |
| 894 | -29.03 | 14.47 | 332 | 2.0 | 750.0 | 0.0 | 4.0 |
| 895 | -28.90 | 14.40 | 434 | 0.0 | 762.0 | 0.0 | 0.0 |
| 896 | -29.37 | 14.93 | 197 | 0.0 | 0.0 | 0.0 | 82.0 |
| 897 | -29.30 | 15.07 | 177 | 0.0 | 0.0 | 0.0 | 104.0 |
| 898 | -29.17 | 15.50 | 184 | 72.0 | 126.8 | 0.0 | 104.0 |
| 899 | -29.05 | 15.70 | 179 | 57.2 | 90.0 | 0.0 | 262.0 |
| 900 | -29.00 | 15.83 | 176 | 23.2 | 20.0 | 0.0 | 198.0 |
| 901 | -28.92 | 16.08 | 151 | 17.2 | 0.0 | 0.0 | 373.2 |
| 902 | -28.80 | 16.33 | 82 | 0.0 | 0.0 | 0.9 | 546.0 |

## Annex 3 Instruments and fishing gear

The Simrad EK-500, 38 kHz echo scientific sounder was used during the survey for fish abundance estimation, in addition data from the 18 kHz, 120 kHz and the 200 kHz transducers were logged for possible future multi frequency target estimation. The Bergen Echo Integrator system (BEI) logging the echogram raw data from the sounder, was used to scrutinize the acoustic records, and to allocate integrator data to fish species. All raw data were stored to tape, and a backup of the database of scrutinized data. The details of the settings of the 38 kHz were as follows:

| | | |
|---|---|---|
| **Transceiver-1 menu** | Transducer depth | 5.5 m |
| | Absorption coeff. | 10 dB/km |
| | Pulse length | medium (1ms) |
| | Bandwidth | wide |
| | Max power | 2000 Watt |
| | 2-way beam angle | -21.0 dB |
| | SV transducer gain | 27.19 dB |
| | TS transducer gain | 27.22 dB |
| | Angle sensitivity | 21.9 |
| | 3 dB beamwidth along. | 6.9° |
| | 3 dB beamwidth athw. | 6.8° |
| | Alongship offset | -0.01° |
| | Athwardship offset | 0.03° |
| **Display menu** | Echogram | 1 |
| | Bottom range | 10 m |
| | Bottom range start | 9 m |
| | TVG | 20 log R |
| | Sv colour min | -67 dB |
| | TS Colour minimum | -60 dB |
| **Printer- menu** | Range | 0 - 50, 0 - 100, 0 - 150, 0 - 250 or 0 - 500m |
| | TVG | 20 log R |
| | Sv colour min | -60 dB |
| **Bottom detection menu** | Minimum level | -40 dB |

A calibration experiment using a standard copper sphere was performed in Langstrand, Namibia 17 August 2003. These settings used during the survey. Another successful calibration was performed near Dakar, Senegal on 8 November 2003. The settings will be changed according to this calibration after this survey.

**Fishing gear**

The vessel has two different sized "Åkrahamn" pelagic trawls and one "Gisund super" bottom trawl. For all trawls, the Tyborøn, 7.8m² (1670 kg) trawl doors were used.

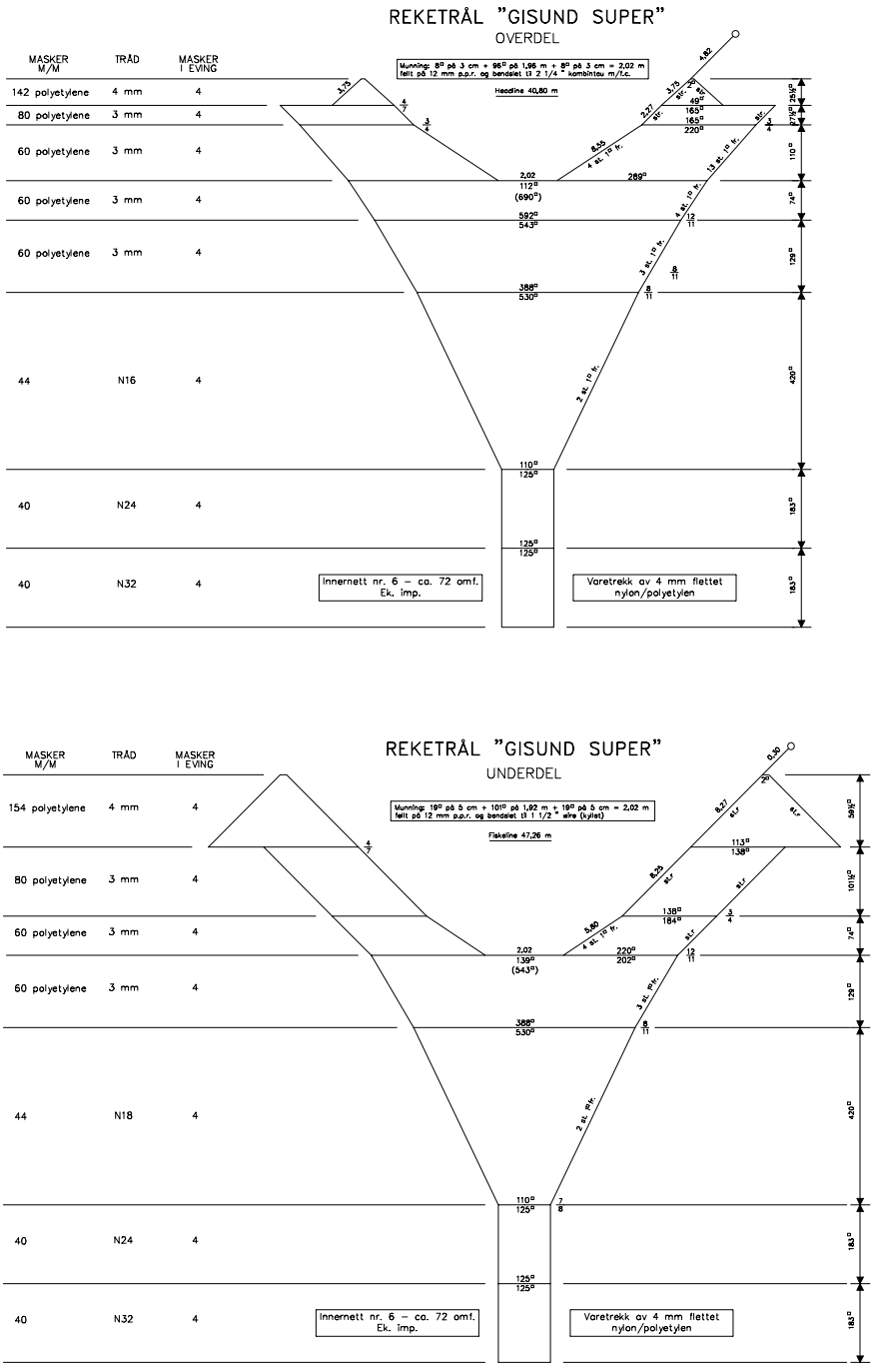


**Figure 1** Design of the trawl used.

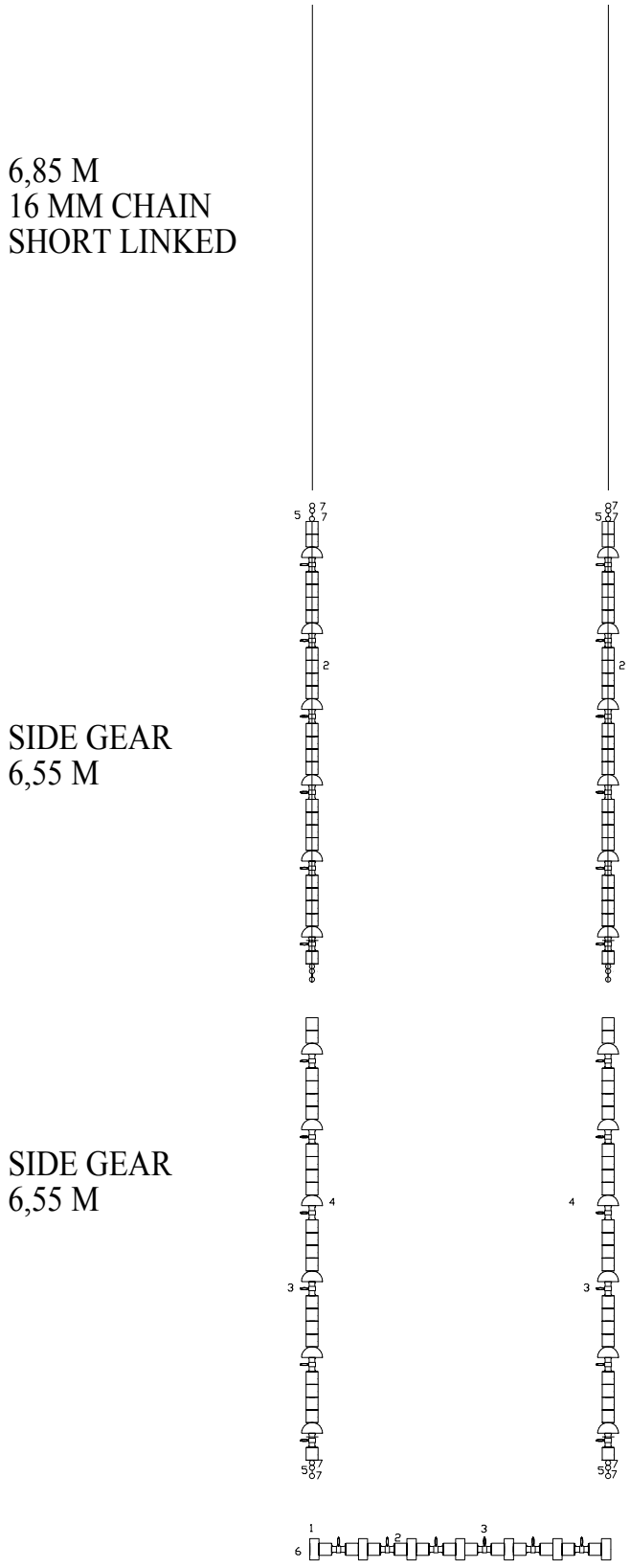


**Figure 2** Schematic drawing of the ground gear used in the experiment.