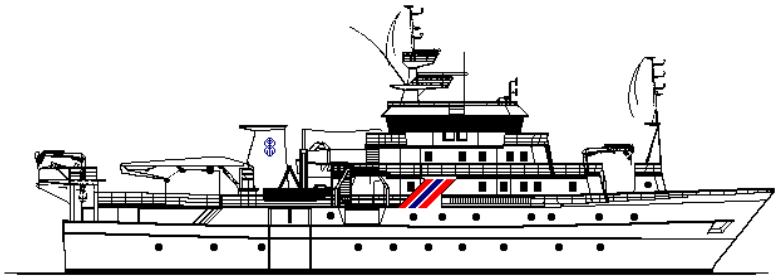

# BCLME SURVEY NO. 1 2004

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

**Cruise report No 5/2004**

**19 April - 2 May 2004**

**by**

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Bergen August 2004

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# 1 Introduction

The first transboundary study in the region, focused on the life history of *Merluccius paradoxus* (deepwater hake) in the area, was carried out on Dr. Fridtjof Nansen in February - March 2004. Research was conducted using transect (systematic) method of sampling over the shelf from Hondeklip Bay to Lüderitz (Figure 1). This provides better understanding of spatial and biological patterns, as compared to stratified random sampling methods. Unbiased estimate of abundance was not the target of this study. In order to study the life history of demersal species it is important to explore the main bathymetric and environmental features of the local shelf and slope system. Systematic survey design, combined with additional detailed sampling in areas of assumed key importance, seems to be more successful in discovering these features.

The February - March study resulted in improved bathymetric maps with especially detailed features in a key area on the slope (Figure 2 and Figure 3). Several CTD transects were made and a current meter rig with two current meters were deployed on the slope of Orange Banks (Figure 4) to improve our understanding of environmental processes in the area.

Preliminary analysis of the data resulted in two, not mutually exclusive, hypotheses concerning distribution, migration and abundance of *M. paradoxus* in Namibian waters.

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°S) where they migrate north as adult fish, following the slope along the 300 - 500 m depth range. As the slope narrows and become steeper around the plateau of the Orange Banks 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.

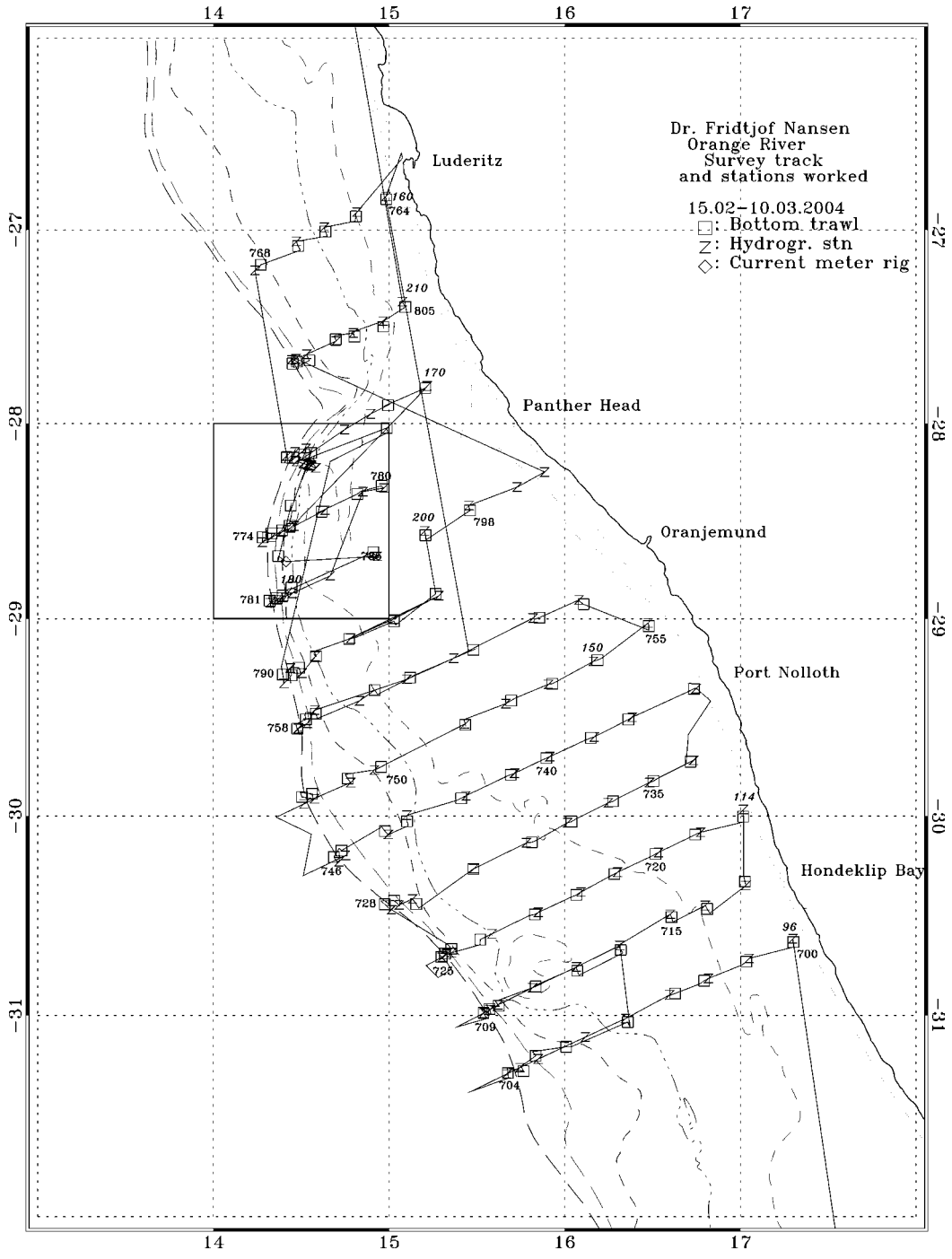


**Figure 1** Course track and fishing and hydrographic stations 15.02 - 10.03.2004.

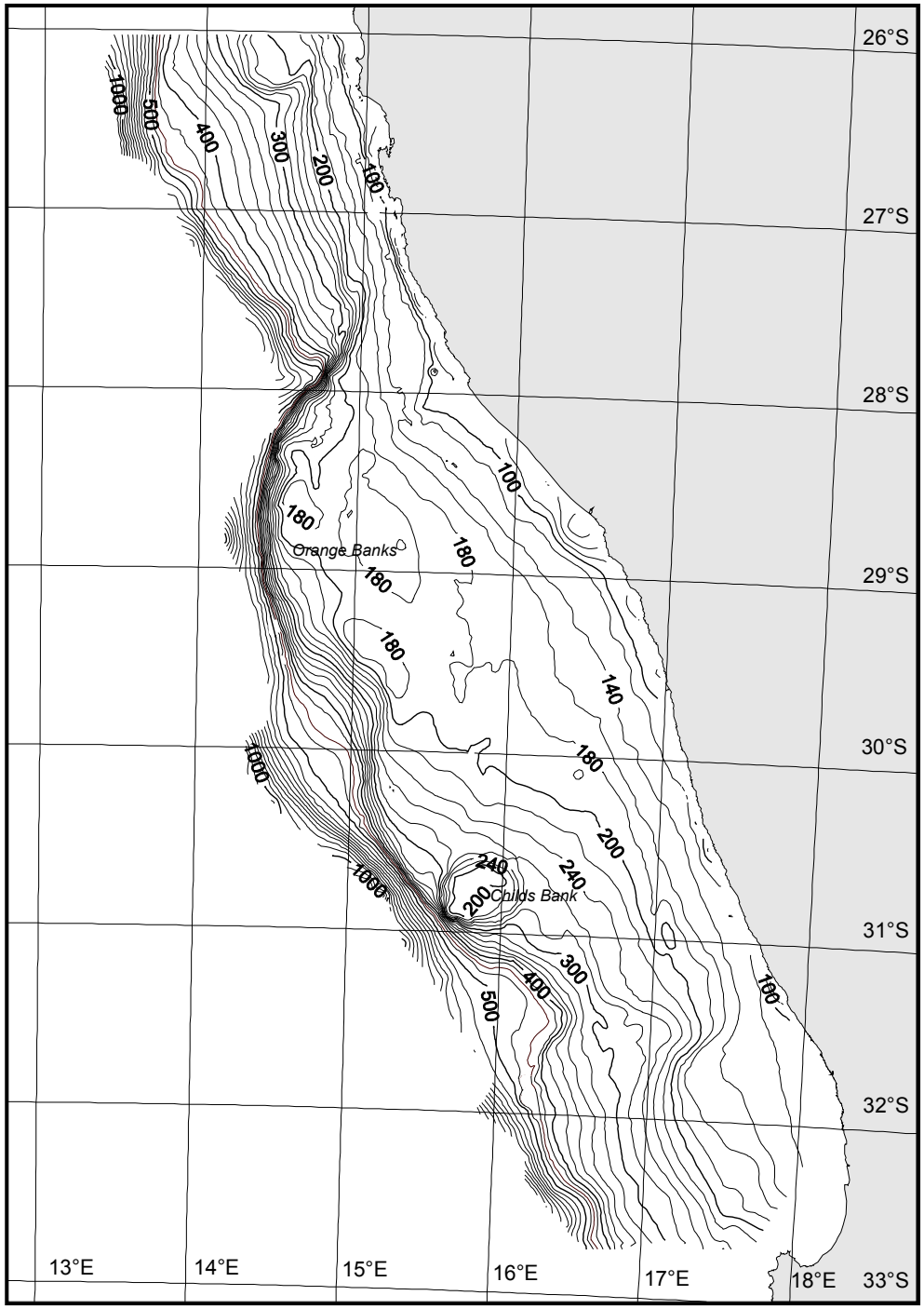


**Figure 2** Bathymetric map based on soundings from Dr. Fridtjof Nansen surveys between 1996 and 2004.

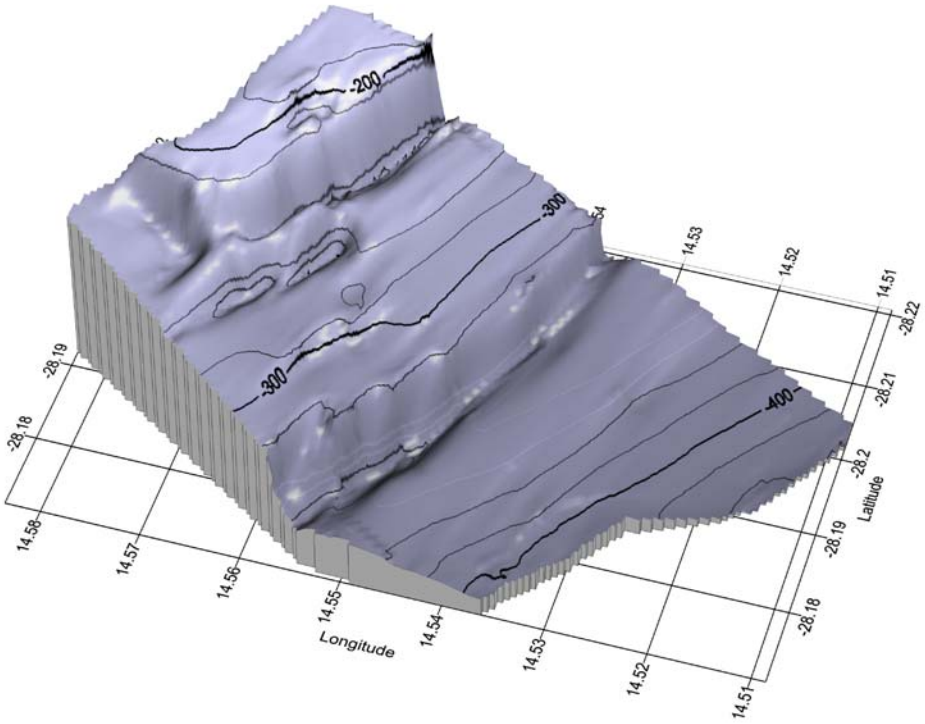


**Figure 3** Three-dimensional bathymetric map based on echo soundings from the survey in February-March 2004.

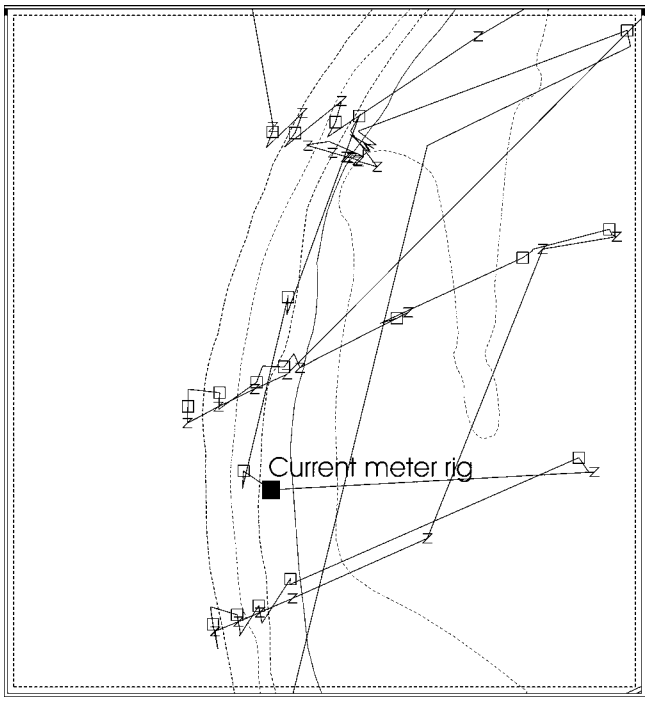


**Figure 4** Location of the current meter rig deployed on 3 March 2004.

Second hypothesis postulates that *M. paradoxus* may spawn as far north as Panther Head (around 28°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 previous survey. The deepwater hake then enters Namibia in a young stage and most of this substock's growth to adulthood takes part in Namibia.

The solving of these questions would have importance on how the deepwater hake is managed as a shared stock between Namibia and South Africa.

The objective of the present cruise was to collect more data of relevance for resolving which hypothesis on *M. paradoxus* is the most plausible.

## 2 Materials and Methods

### 2.1 Registration of weather conditions

The underway weather data aboard R/V 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 it readings are representative to a water layer at about 5 meters below the sea level.

The weather station data were logged continuously throughout the survey. The results presented in this report are based on a standard output from the logging system comprising one nautical mile averages along the ship's track.

## 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 03 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 III 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 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 III. Dr. Fridtjof Nansen use a 20 m strap 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/NM$^2$), 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 NM$^2$. 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. All samples of small hake was checked for the species identity by vertebrae count (usually 3 - 5 fish were examined).

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:

## 3 Narrative

The scientific staff consisted of:

MCM, South Africa:

Marek LIPINSKI, Sharon du PLESSIS, Mandisile MQOQI, Dandelene REYNOLDS and Bradley BLOWS

NatMIRC, Namibia:

Paul KAINGE and Toini MWEENDA

IMR, Norway:

Oddgeir ALVHEIM, Tore MØRK and Terje HOVLAND

The cruise tracks with fishing and hydrographical stations are shown in Figure 5

The vessel departed Walvis Bay in the afternoon on 19 April. The vessel steamed southwards and started working the northernmost transect (between Panther Head and Lüderitz). During the next three days the inner part of the Panther Head transect and the whole Orange River transect were worked. Additional CTD stations were done near Tripp's Sea Mount. On 25 April morning stations were worked along the shelf on depths between 330 and 490 m and the afternoon was allocated to pick up the current meter rig deployed in March. The acoustic release was detected by acoustic communication, but the floats of the rig could not be detected on the echosounder. The release unit confirmed the acceptance of a release command, but the rig did not ascend. Most probably the current meter with floats are lost, perhaps due to trawling activities in the area. The next day trawl sampling was resumed at the outer part of the Panther Head, but rough weather stopped the trawling midday. The following days stations along the slope (420-490 m) and on the outer shelf (170-190 m), and the Panther Head transect were completed. The last two transects were executed at the end of the survey finishing the work in the afternoon of 30 April. Walvis Bay was called in the evening on 1 May.

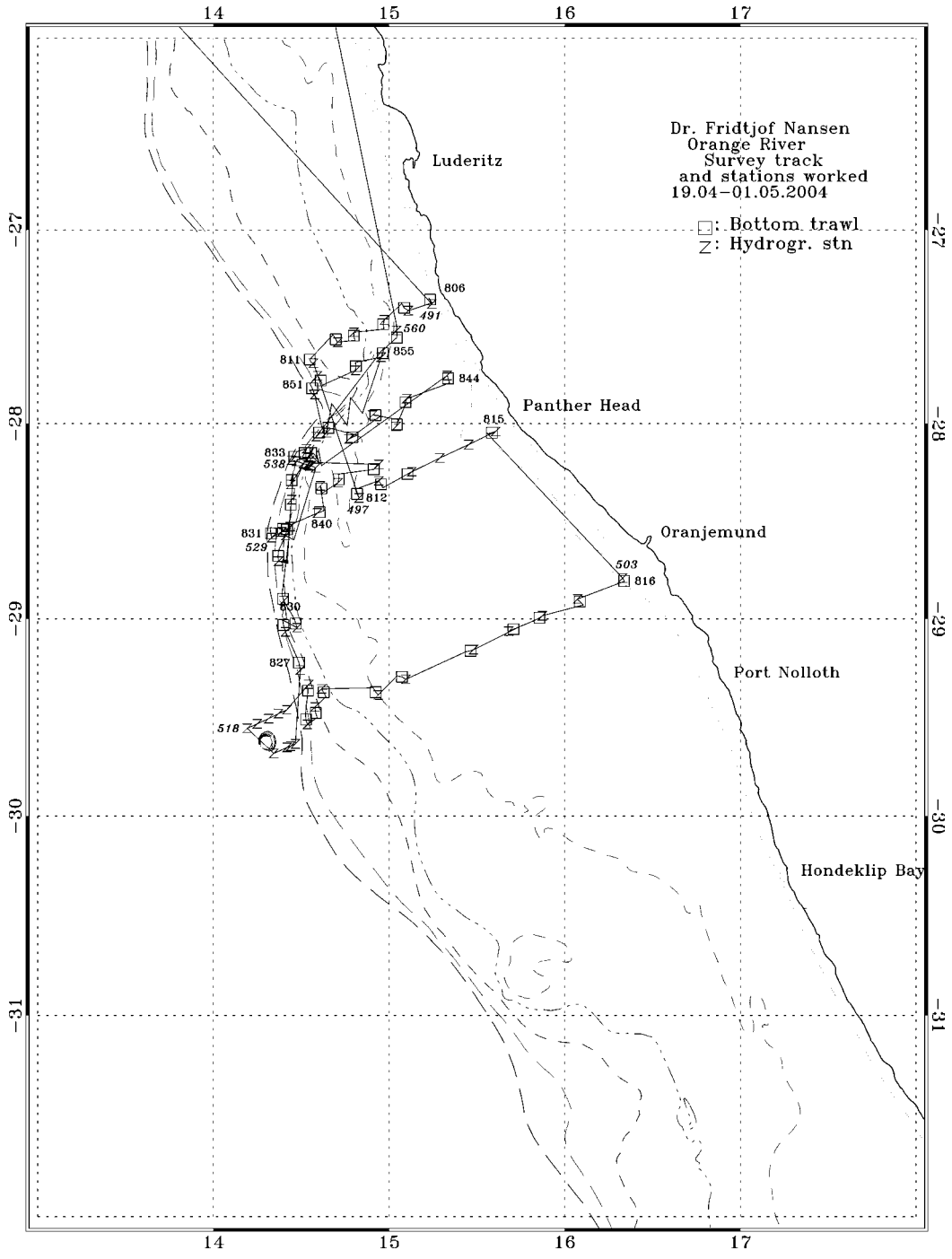


**Figure 5** Course track and fishing and hydrographic stations.

# 4 Results

## 4.1 Bathymetry

During the previous BCLME survey, we have developed a digital terrain model (DTM) for the Orange Banks based on the acoustic soundings from the past surveys with R/V Dr. Fridtjof Nansen. Due to the insufficient data coverage, however, our DTM inaccurately resembled the bathymetry of the northern section of the bank. During this survey, this shortcoming was greatly eliminated due to an addition of new survey tracks collected during the two last BCLME surveys. Table 1 provides a summary of the updated version of the Orange Banks DTM. A bathymetric chart based on the DTM is depicted in Figure 6. The new DTM has revealed new features of the bottom bathymetry, which have helped us understand features of hydrography and fish distribution in the northern Orange Banks. One of these was the bottom configuration encountered along the narrowing portion of the continental shelf between 28°10' and 29°40' S, in the depth range preferred by the adult hake. The westward end of the relatively flat bottom of the basin above 200 m depth is in this area terminated with a steep underwater cliff. From the base of the cliff at about 260 - 280 m the bottom exhibits two flat ledges separated by a 50 m fault, the lower one extending to the upper continental slope area at a depth of 450 - 500 m. Another feature was a shallow (20 - 40 m deep) depression running in the center of the Orange Banks, north of 30°S. Despite of a small sill depth, this depression appears to promote a northward spread of the dense bottom water uplifted at Hondeklip Bay upwelling center along the bank.

The current status of the DTM could be further improved by adding more sounding data from new surveys with R/V Dr. Fridtjof Nansen or data from other vessels equipped with high-quality research echosounders. For instance, there is a need to improve the coverage along the bank's western edge south of 29°40' and to include the area around the Trip Seamount (29°37 S, 14°15 S).

**Table 1** Summary of the DTM for the Orange Banks derived from the R/V Dr. Fridtjof Nansen acoustic soundings.

| | |
|---|---|
| Latitudinal extent: | 25°42' - 32°47' S |
| Longitudinal extent: | 13°21' - 18°12' S |
| Cartographic projection: | Transverse Mercator, $\lambda_0$=14° S |
| Number of source data used in interpolation: | 25348 |
| Interpolation method: | Kriging with the variogram model: |
| | *γ(x) = 0.0115 Lin(x) + 0.0115 Nugget(x)* |
| Output format: | Raster map |
| Raster (node) size: | 1 x 1 nautical mile |
| Number of pixels: | 260 x 440 |
| Applicable depth range: | 100-700 m |
| File format: | Flat binary stream or Surfer grid (.GRD) |

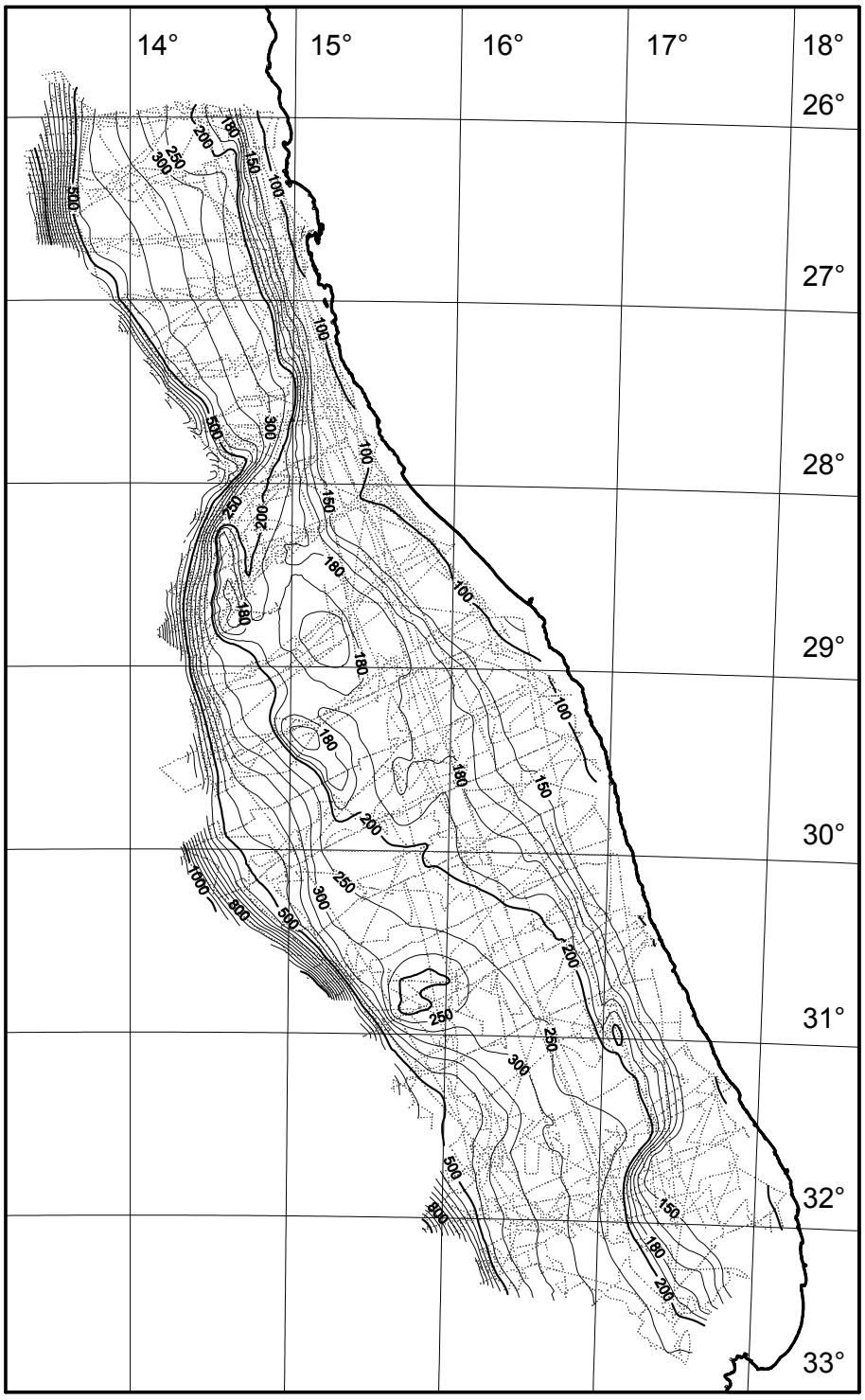


**Figure 6** A bathymetric map of the Orange Banks and adjacent areas obtained from the digital terrain model (DTM) described in this section. The survey tracks applied to generate the DTM are shown in the background.

## 4.2 Hydrography

In this report, we focus on changes in the distribution of seawater properties in the survey region between the summer and autumn. We compare the results from the first survey in February-March with these collected during the current survey in April-May 2004. The area covered in this survey was smaller than in the previous one, limited to the Namibian section of the Orange Banks located to the north of the Orange River Delta. The total number of the occupied CTD stations was 70.

### *4.2.1 Station distribution*

Distribution of the three principal CTD lines is depicted in Figure 7. In April, the hydrographic variability between on the continental slope at the shelf-break has been investigated by means a high-resolution CTD line (Stations 530 - 538) located in the northwest corner of the Orange Banks. The station spacing was exceptionally small, ranging from 0.3 to 2 nautical miles. The same line, although short of the outermost station had been occupied during the first survey February-March. Figure 9 compares changes in the hydrography between the two surveys.

The variability across the Orange Banks between 100 and 200 m depth during April was investigated by means of a CTD line running offshore off the Panther Head Cape in (Stations 502 – 545 in Figure 7). During February-March this line was shifted by some 15 NM to the south (Stations 179-203 in Figure 7). Figure 10 compares the results from the summer and autumn.

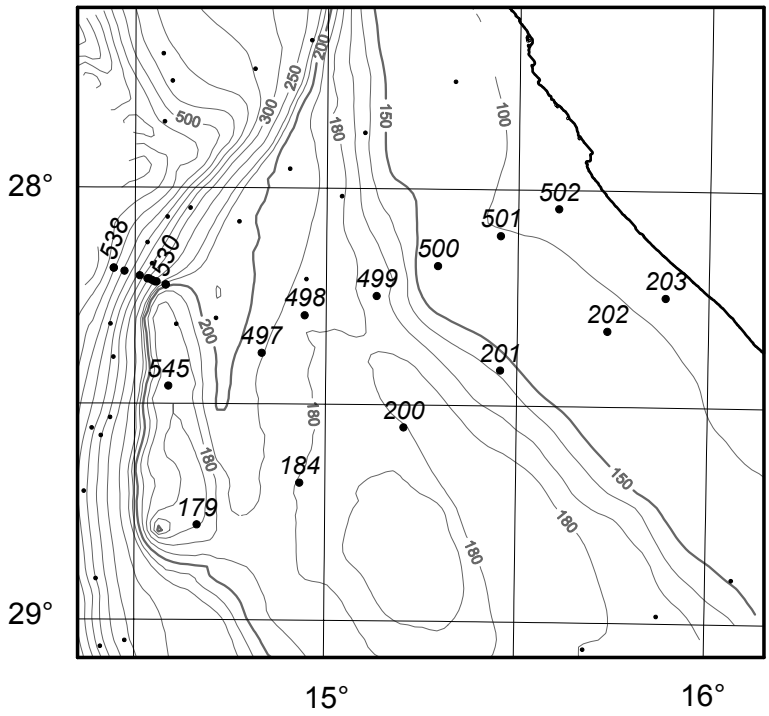


**Figure 7** Distribution of CTD stations along the three principal lines referred in this section These are overlaid on the Orange Banks digital terrain model (Section 4.1). The small, unlabeled circles represent locations of the remaining CTD stations occupied in this region during the April-May survey.

*4.2.2 Variability on the outer shelf.*

The longshore wind stress over the survey area is directed equatorward all the year round. This favours a perennial upwelling along the coast, which drives the surface waters offshore and brings nutrient-rich near-bottom water masses from the shelf-break and slope area to the vicinity of the coast. It also determines that the main influences on the Orange Banks hydrography originate in the Cape Basin and at Aghulas Retroflection. This costal region appears to be isolated from the tropical Atlantic influences such as the poleward spread of the low-oxygen tropical water, which dominates the shelf hydrography off the northern and central Namibia.

In spite of the absence of major wind reversals, the hydrographic conditions in the region exhibit a distinct seasonal cycle. The strongest inshore SST fronts occur in summer. In the autumn and winter the SST front weakens and migrates offshore. In the northern section of the Orange Banks, between 27-28°S, an anticyclonic meander has been reported by

numerous observations (Strub et al. 1998). Its strongest signature appears to occur in summer. Associated to the seasonal migration of the coastal SST front is a northward spread of warm and saline water at a depth 50 – 100 m, which originates from the Agulhas Retroflection (Lutjeharms and Van Ballegoyen, 1998).

The T-S diagram depicted in Figure 8 clearly demonstrates the change in the water masses composition that took place offshore of the Orange Banks between February and April. The temperature and salinity of the subsurface water masses observed in February are distinctly higher from these observed in April (T=14.5°C, S=35.35 versus T=13.9°C, S=35.1 at the potential density 26.25 kg/$m^3$ in February and April, respectively). This marks a seasonal change that has occurred in the source of the subsurface water masses off the Orange Banks: from High Salinity Central Water (HSCW) related to the Aghulas Retroflection during the summer to Low Salinity Central Water (LSCW) originated in the Cape Basin in the autumn.

Figure 9 depicts vertical distributions of temperature, salinity, oxygen and potential density along the high-resolution CTD line (Figure 7). In February, the stratification was strong, extending down to a depth 200 m and not exhibiting a horizontal gradient. Inshore of the shelf-break, where the bottom depth is less then 200 m this warm and saline water dominated the entire water column. Also notice a downward tilt of isopycnals below the shelf-break depth, suggesting a poleward flow at the base of the Orange Banks cliff (Figure 9 f).

In April, the vertical water mass structure off the Orange Banks has changed dramatically. The vertical stratification is greatly reduced and all seawater properties exhibit a pronounced depression, located just offshore of the western edge of the Orange Banks (Figure 9). This depression suggests a presence of an anticyclonic eddy during April, controlled by the local topography, which causes a mid-shelf upwelling of relatively cold and low salinity deep waters into the Orange Banks. The tilt of isopycnals below the shelf-break also changes with respect to the summer case; it reverses suggesting a change to the equatorward current direction along the bank's edge (Figure 9g).

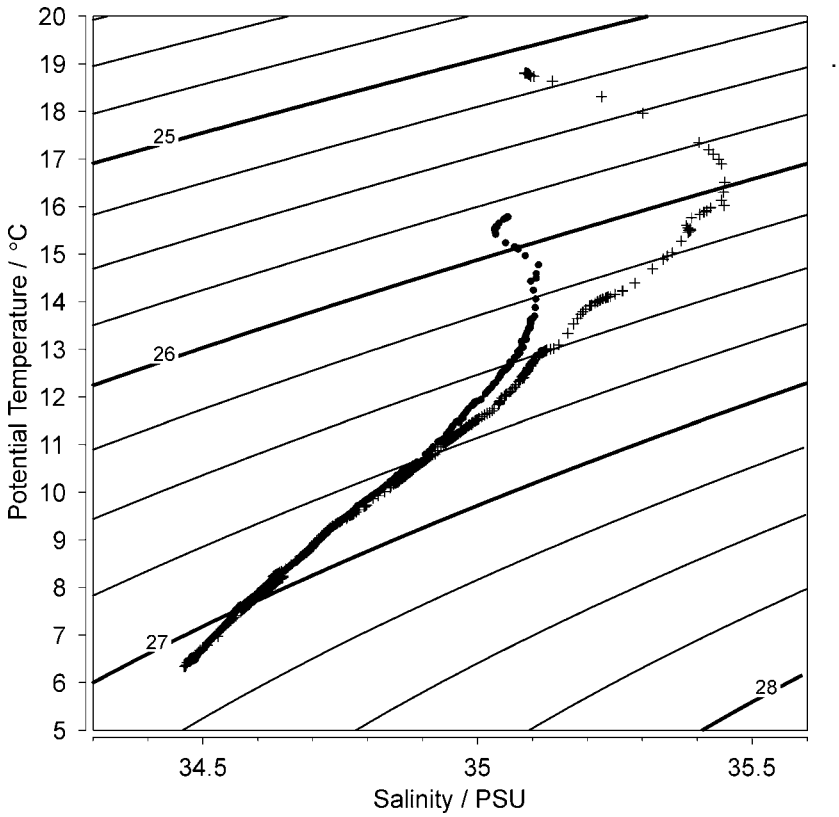


**Figure 8** T-S diagram for stations 192 and 537 at a position 28°11.67'S, 14°28.35'E, occupied during February and April, respectively. The bottom depth was 537 m. The plus symbols describe the data from station 192 (February), while the closed circles pertain to sta. 537 (April).

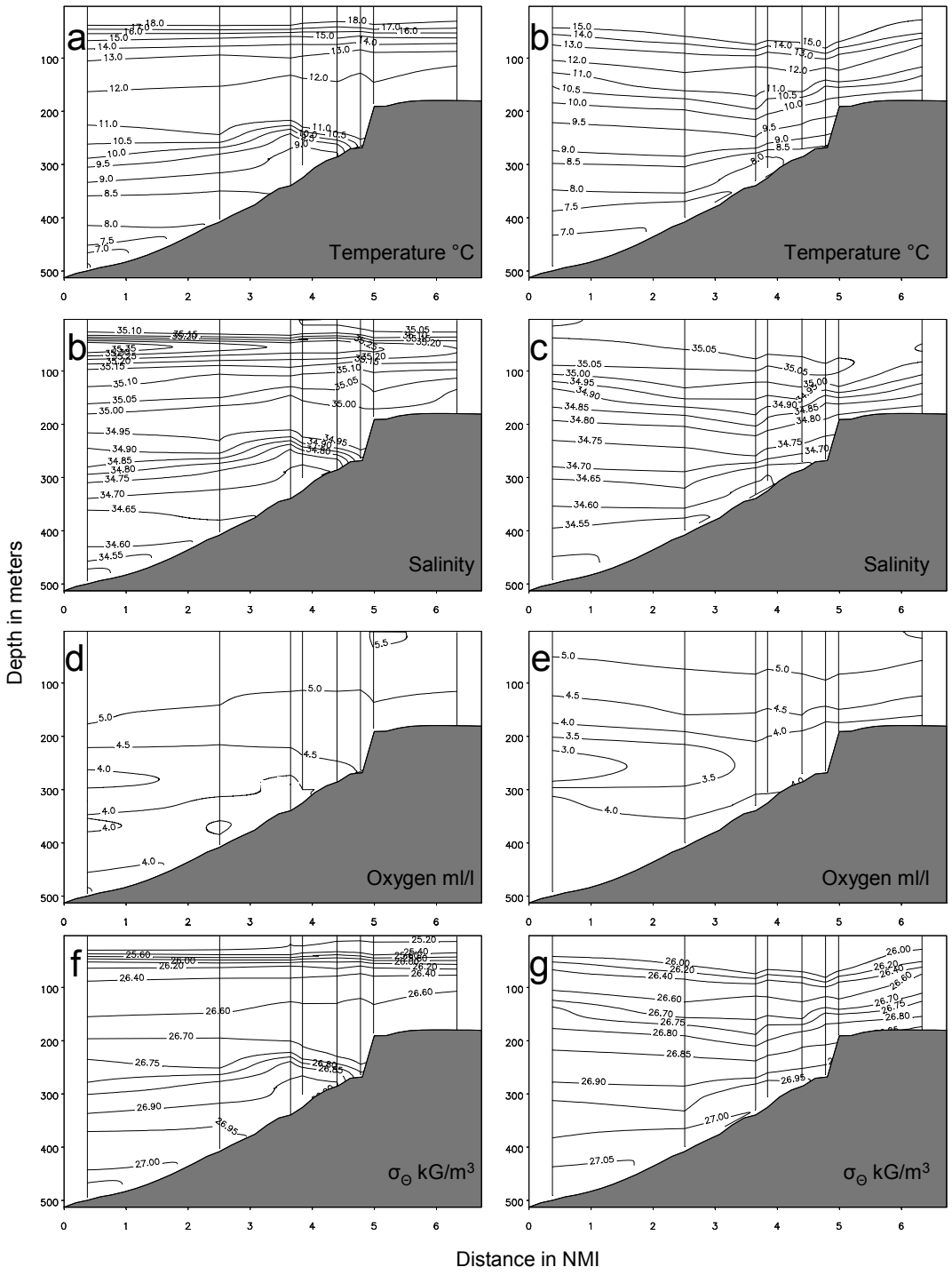


**Figure 9** Distribution of seawater properties off the Orange Banks in February and April 2004. The panels to the left pertain to the February survey; these to the right depict the April result. Locations of stations correspond to Stations 530-537 in Figure 7.

### *4.2.3 Variability on the Orange Banks*

Seawater properties distributions in the interior of the Orange Banks are depicted in Figure 10. The conditions on the offshore end of the section follow the same seasonal change as that observed along the high-resolution CTD line (Figure 9). In the summer, warm and saline water masses advected along the Africa's coastline from the Aghula's retroflection dominate the vertical water column on the outer bank, to be replaced in the autumn by colder and less saline waters uplifted locally by the mid-shelf upwelling.

Further inshore, in the bottom layer, the pattern of the seasonal change is different. The seawater properties exhibit a presence of a cold and low salinity plume with T-S characteristics of the slope waters drawn from the depths 500-600 meters or more. From the distributions shown in Figures 9 and 10 it is clear that that density within the plume is distinctly higher than in that observed near the bottom on the offshore side of the section. It is thus unlikely that the dense plume on the northern Orange Banks has been brought by a local upwelling. Rather, it is a result of an internal circulation on the bank with a source of the dense waters located away from the surveyed region. Our data suggest that this water is drawn from the deep-water masses welled up off the Hondeklip Bay upwelling centre and than it is advected to the north along the shallow depression, which cuts the center of the Orange Banks. This suggestion stems from comparing the high-resolution bathymetry of the Orange Banks described in Section 4.1 and the distribution maps of seawater properties near the bottom derived from the dense grid of stations during the February-March survey. In Figures 11 and 12 we overlaid the data collected during the survey on top of the digital terrain model (DTM) from Figure 6. Figure 11 depicts the SST map overlaid on the DTM. It is obvious that the strongest upwelling takes place south of the Orange Banks, in an area where the bottom of the shelf descends gently towards the continental slope, which is off the Hondeklip Bay. Figure 12 depicts the distribution of density at 155 meters. From this distribution, one can draw a conclusion that the densest bank waters are formed in the shallow region of the Hondeklip Bay upwelling cell and then are advected northwards along the depression in the centre of the Orange Banks.

The potential density of this Orange Banks bottom water exceeds 26.85 kG/m3, its salinity is less the 35.75 and temperature is below 9.5 °C. Assuming it is a separate water mass, these parameter range places it in the lower range of Atlantic Central Water described by the T-S diagram in Figure 7. However, its oxygen concentration is distinctly lower from the oceanic water, apparently due to increased productivity on the shelf and increased oxygen

consumption in the bottom layer. Note that the position and hydrographic properties of the plume do not undergo significant seasonal changes between February and April.

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Strub, P.T., Shillington, F.A, James, C, Weeks, S.J, 1988. Satellite comparison of the seasonal circulation in the Benguela and California Current systems. S.Afr. J. Mar. Sci., 19. 99-112.

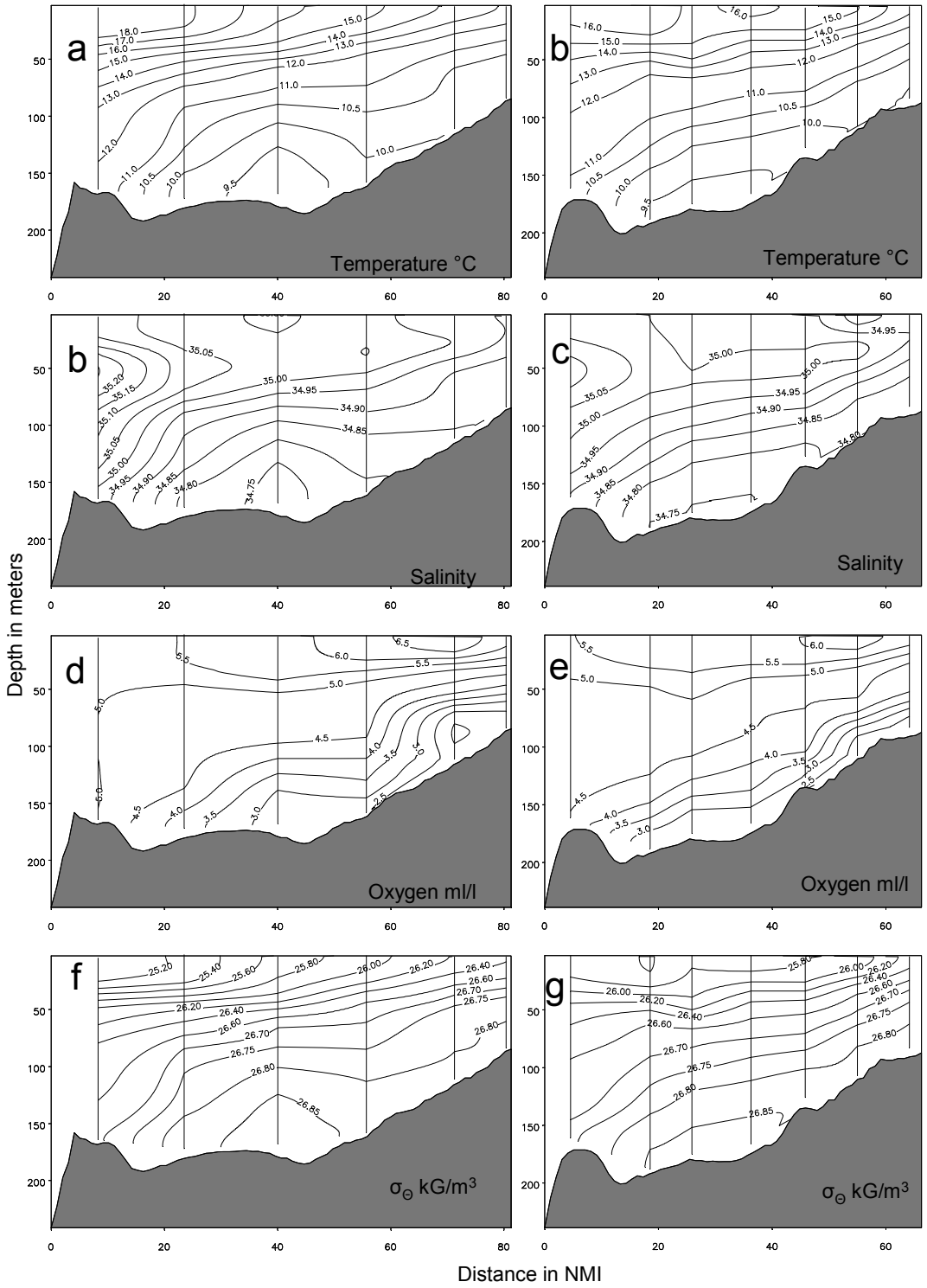


**Figure 10** Distribution of seawater properties on the Orange Banks in February and April 2004. The panels to the left pertain to the February survey; these to the right depict the April result. The locations of the stations are depicted in Figure 7.

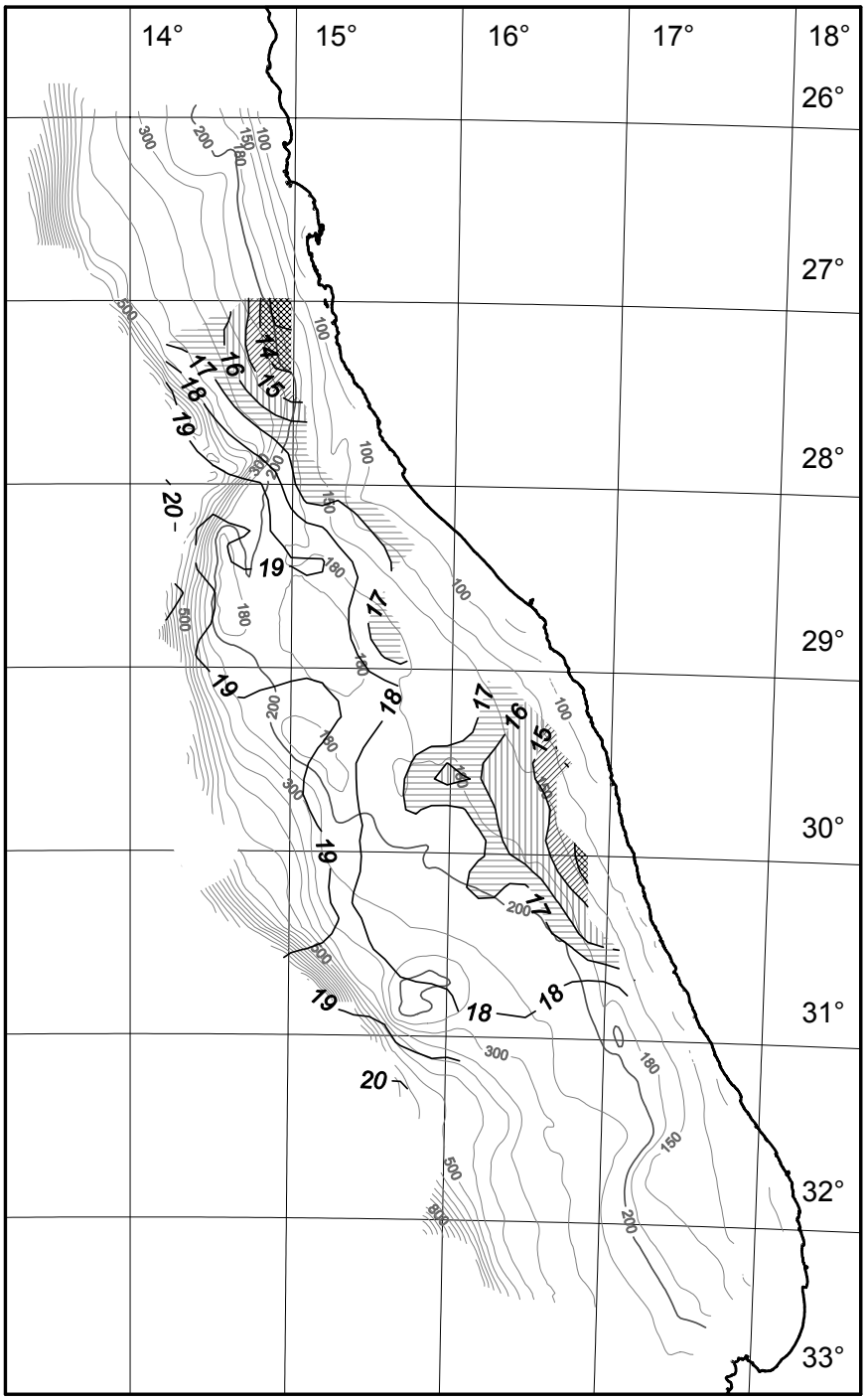


**Figure 11** Distribution of sea surface temperature during February 2004 overlaid on top of the digital terrain model of the survey area.

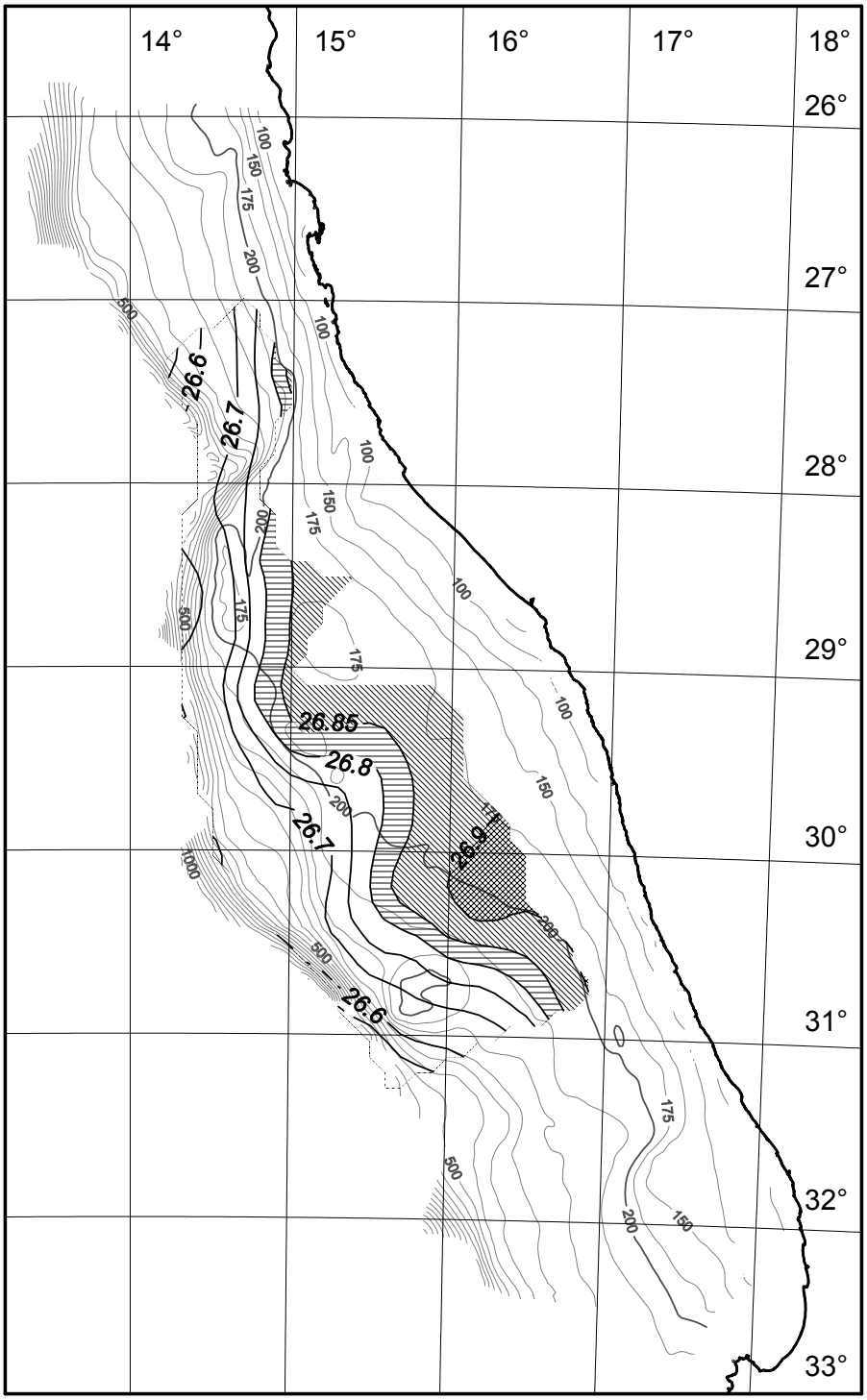


**Figure 12** Distribution of potential density at 155 m depth during February 2004 overlaid on top of the digital terrain model of the survey area.

## 4.3 Biology

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

Figure 13a - h shows 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. The small fish, less than 11 cm, Figure a, is still mostly in a pelagic state but occurs frequently in the trawl on the shelf indicating it main distribution area. The 11-15 cm group, Figure 13b, shows the highest densities on mid shelf and well spread from Orange River to 28°S. From the 16 - 20 cm to the 21 - 25 cm group is seen a gradual thinning of fish on mid shelf and concentrations in the Northeast, at Orange Banks, Figure 13c - d. These two groups also now start to show up at the upper part of the slope 200-300 m. The movement towards the slope is progressed in the following size classes, Figure 13e - f and from 36 cm, Figure 13g most of the fish is at the slope and deeper than 300 m. The older fish, larger than 35 cm, Figure 13h is concentrated around 400 m. The series also shows that Orange Banks is an area for small fish and does not hold fish larger than 35 cm.

A similar pattern is shown in a comparison with the survey in February-March, extracting the stations that pertain to the same study area, Figure 14a - h. The very small fish, <10 cm, is located south of 28°30'S, followed by a spreading northwards on the shelf by the 11-15 cm class, Figure 14b. In the 16-20 and 21-25cm groups are seen a movement towards mid shelf and the upper slope. Beyond 25 cm this movement is further accentuated and most of the fish bigger than 35 cm is located on the slope as also was found in the recent survey, in April. The figures also show the Orange Banks area does not hold small or medium sized fish in February, in contrast to the picture from the recent survey.

Estimates of fish abundance has been calculated for the same length groups, based on the same contouring as in Figure 13 and Figure 14. Table 2 shows the results from this.

**Table 2** Estimates of abundance in study area by 5-cm classes in February and in April.

| Length class (cm) | Numbers (millions) February | Numbers (millions) April | % difference |
|---|---|---|---|
| 6-10 | 60 | 210 | +250 |
| 11-15 | 180 | 553 | +207 |
| 16-20 | 70 | 305 | +336 |
| 21-25 | 95 | 72 | -24 |
| 26-30 | 43 | 47 | +9 |
| 31-35 | 27 | 14 | -48 |
| 36+ | 9 | 13 | +44 |
| | | | |
| Total | 483 | 1215 | +152 |

The increase in the three smallest classes seems significant, but could be due to more immigration from south or from behaviour closer to the bottom in April. These classes are assumed to have its major components still in the pelagic zone. For the bigger classes we cannot yet conclude if this is a significant change or due to random error.

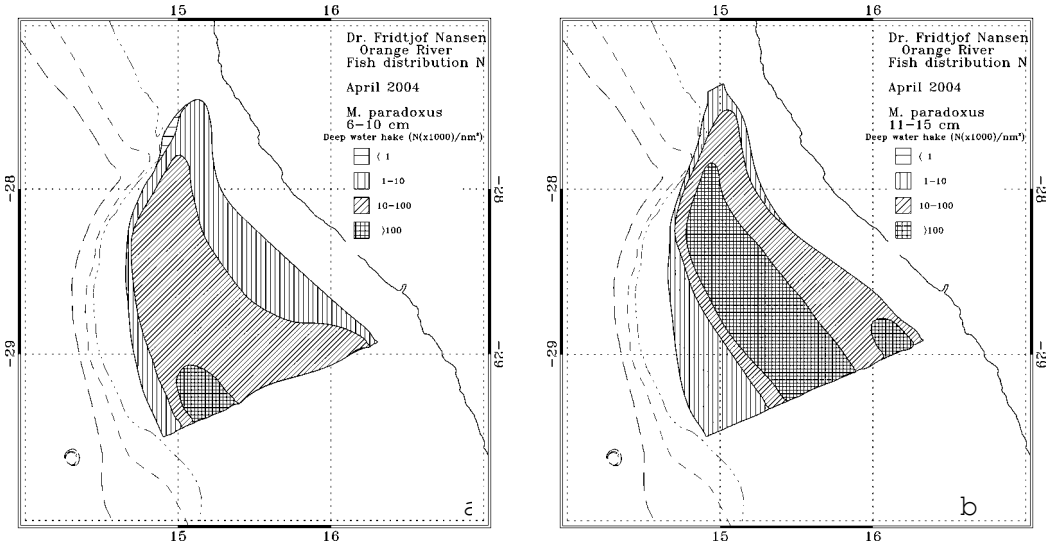


**Figure 13a -h** Distribution of *M. paradoxus* in the study area in April 2004, grouped by 5-cm classes.

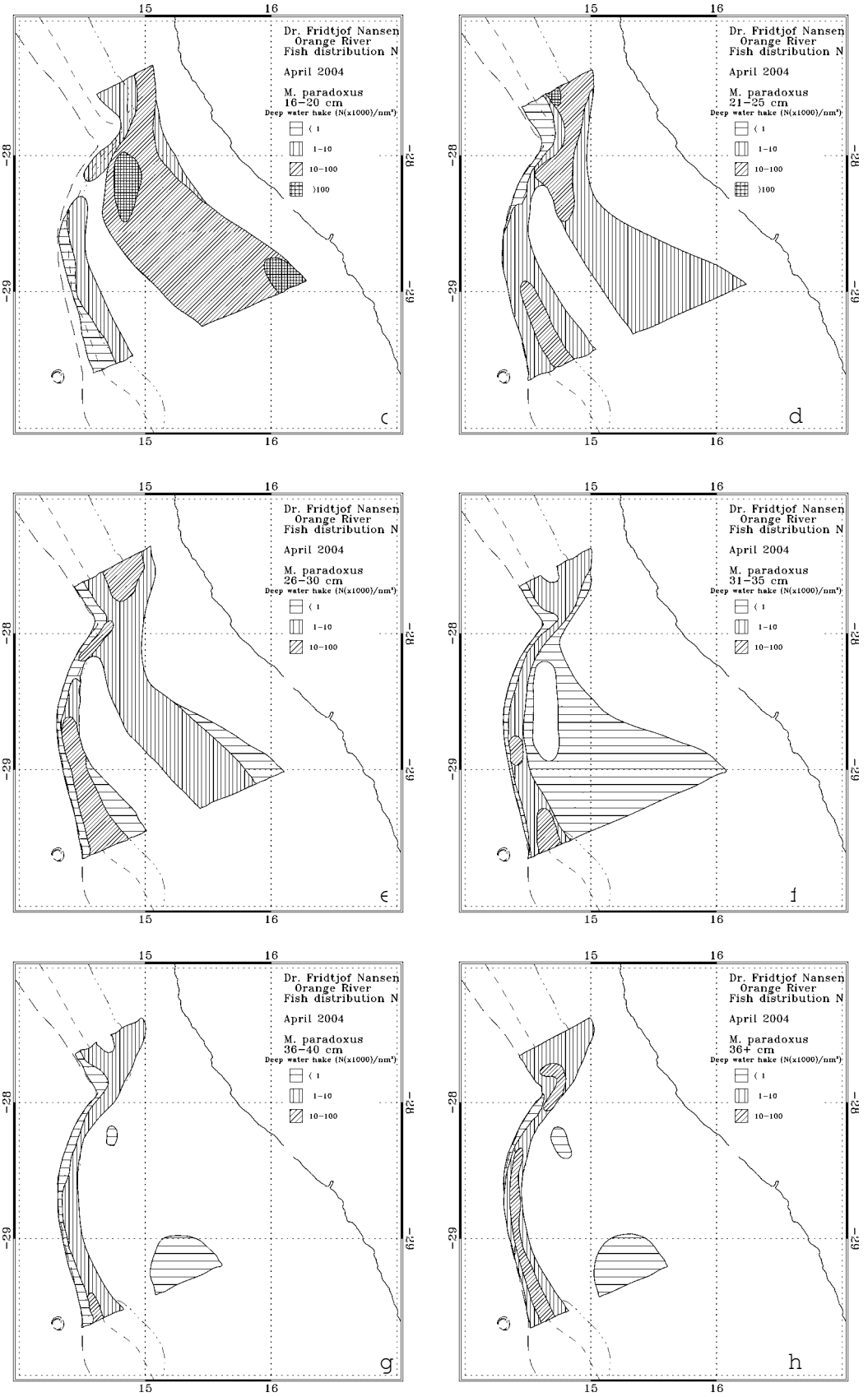


**Figure 13a-h** continued

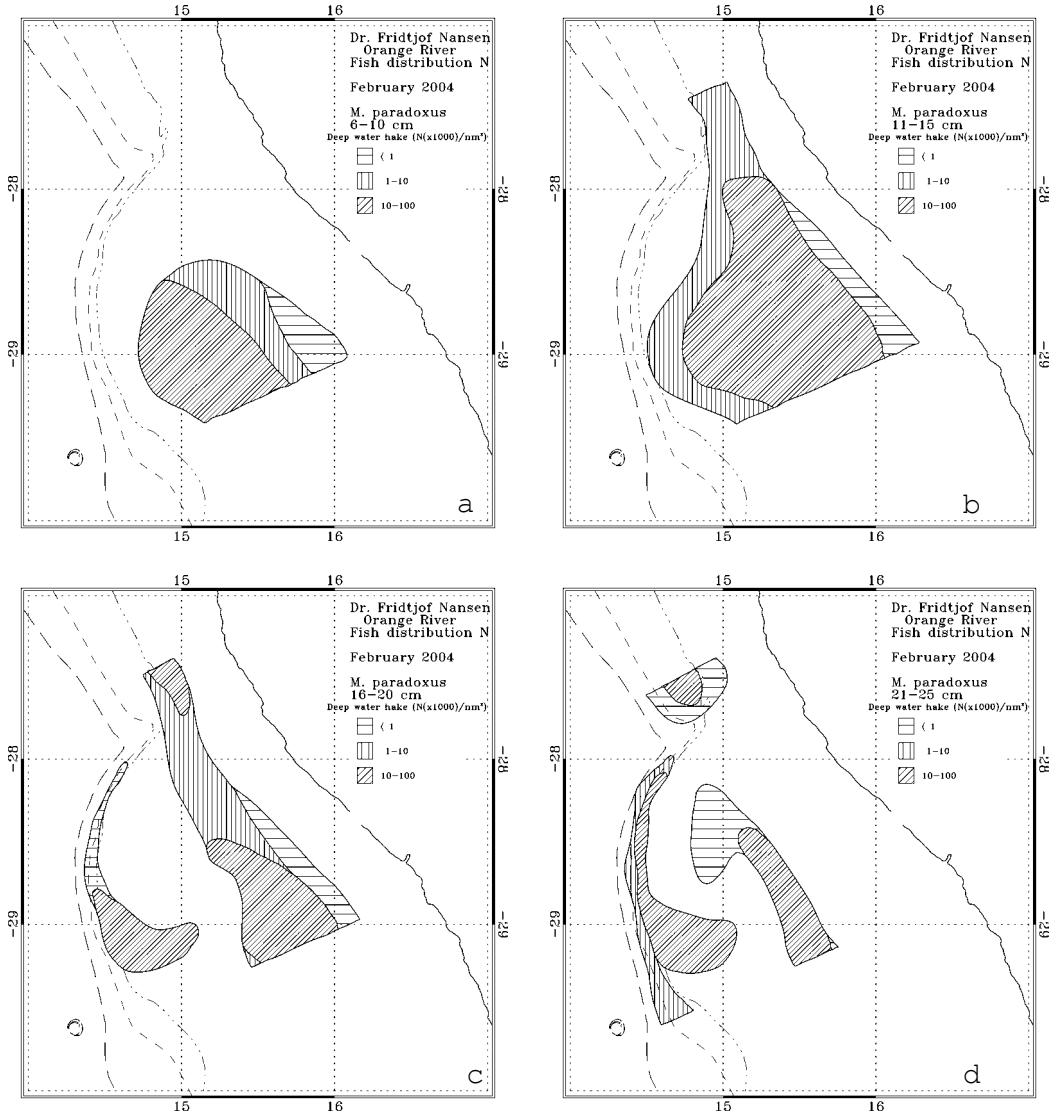


**Figure 14 a-h** Distribution of *M. paradoxus* in the study area in February 2004, grouped by 5-cm classes.

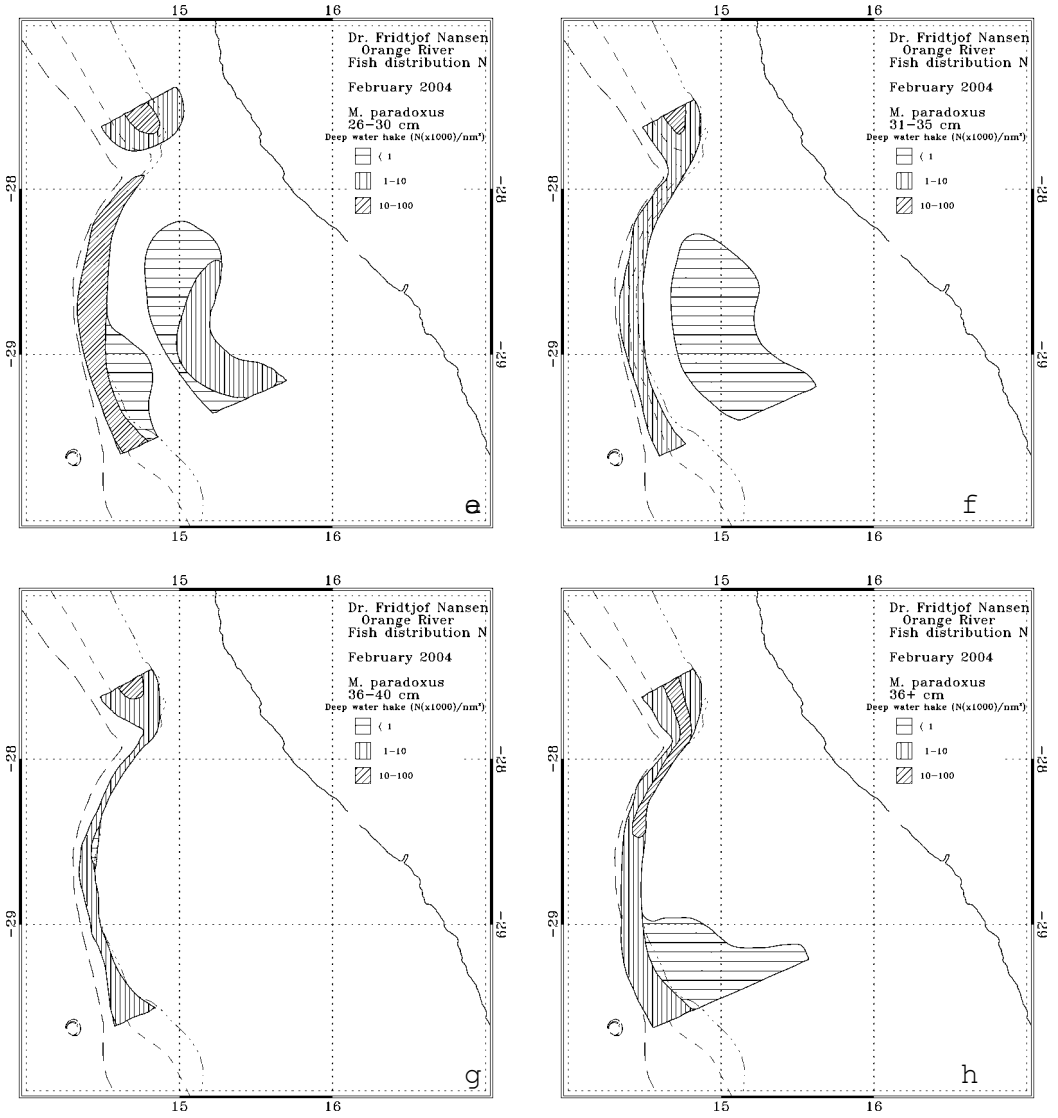


**Figure 14a-h** continued

Pooled length frequency distributions (normalised to catch per nm²) of the two hake species grouped by the shelf and slope area are shown in Figure 7.

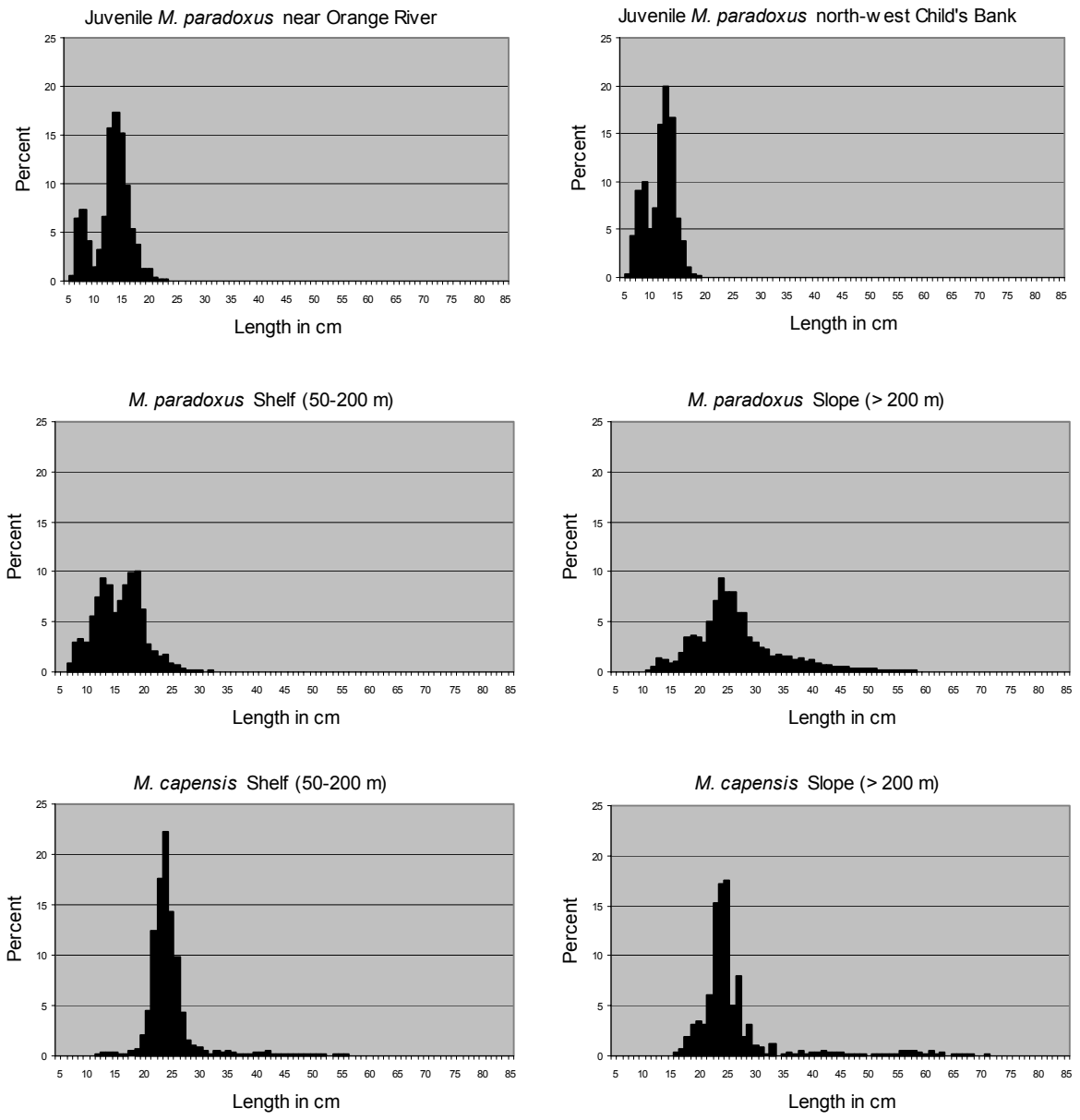


**Figure 7** Pooled length frequencies of hake.

## 5 Consideration of the survey result

The main objective of the survey was to shed more light upon the question on how the deep water hake (*M. paradoxus*) populates Namibian waters. Two working hypotheses were raised in the introduction of the report: 1) populating through migration of adults following the slope northwards from South-Africa, or 2) populating by migration/diffusion of juveniles across the shelf from Hondeklip Bay area and into Namibia north to Lüderitz where the juveniles gradually mix with the adults as the former grows into adulthood and descends into deeper waters.

The present survey confirms earlier findings that the center of distribution of the youngest stages (5-10 cm) is south of Orange River, i.e. in South African waters.

However contrary to earlier perceptions, at least some young fish seems to use a mid-shelf channel to diffuse northwards into Namibia, onto where the shelf narrows at 28°S. This is strongly indicated by the 11 – 15 cm size class.

The adult fish on the slope are distributed as a continuous band between South-Africa and Namibia at depth ranges from 300 to 600 m, suggesting an open channel for migration.

An analysis of the hydrographical features in February and April confirms that the shelf areas between Orange River and 28°S are highly dynamic with varying origin of the water masses. This supports the concept that the water masses temporarily may form a barrier for the fish on the shelf.

At present, none of the hypotheses are rejected, and it could be that both migration routes could be important features of the populating mechanism.

The forthcoming survey in August-September should add further information to this picture. It is expected that this survey will shed more light on the slope migration as the hake then enters its main spawning period and is expected to have more active migration.

The importance of the second hypothesis should also be checked by consulting historical data on the ratio between juvenile and adult hake in Namibia and South Africa separately. If the ratio is an order of magnitude less in Namibia, compared to South Africa, it will indicate that diffusion of juveniles into the Namibian adult component is a less important recruitment mechanism than active migration along the slope from South Africa (first hypothesis).

# Annex I Records of fishing stations

PROJECT STATION: 806

DATE:21/ 4/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2722
start stop duration Long E 1514
TIME :06:30:08 06:52:48 23 (min) Purpose code:
LOG : 861.91 863.06 1.14 Area code :
FDEPTH: 117 115 GearCond.code:
BDEPTH: 117 115 Validity code:
Towing dir: 150ø Wire out: 330 m Speed: 30 kn*10

Sorted: Kg Total catch: 34.05 CATCH/HOUR: 88.83

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 38.35 | 459 | 43.17 | 6878 |
| Chelidonichthys capensis | 20.87 | 68 | 23.49 | 6883 |
| Callorhinchus capensis | 9.13 | 5 | 10.28 | |
| Etrumeus whiteheadi | 6.39 | 128 | 7.19 | |
| Sufflogobius bibarbatus | 5.22 | 292 | 5.88 | |
| Genypterus capensis | 3.13 | 21 | 3.52 | 6882 |
| Octopus vulgaris | 2.24 | | 2.52 | |
| Austroglossus microlepis | 1.30 | 8 | 1.46 | 6880 |
| Todaropsis eblanae | 0.89 | 31 | 1.00 | 6884 |
| Sepia australis | 0.70 | 31 | 0.79 | |
| Trachurus trachurus | 0.18 | 3 | 0.20 | 6881 |
| Macropipus sp. | 0.16 | 8 | 0.18 | |
| Zeus capensis | 0.13 | 8 | 0.15 | 6879 |
| Lolliguncula mercatoris | 0.08 | 29 | 0.09 | |
| Squilla sp. | 0.03 | 3 | 0.03 | |
| Congiopodus spinifer | 0.03 | 3 | 0.03 | |
| Total | 88.83 | | 99.98 | |

PROJECT STATION: 807

DATE:21/ 4/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2724
start stop duration Long E 1505
TIME :08:32:03 09:03:12 31 (min) Purpose code:
LOG : 874.39 875.94 1.55 Area code :
FDEPTH: 163 166 GearCond.code:
BDEPTH: 163 166 Validity code:
Towing dir: 330ø Wire out: 480 m Speed: 30 kn*10

Sorted: Kg Total catch: 306.37 CATCH/HOUR: 592.98

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 375.48 | 3900 | 63.32 | 6885 |
| Etrumeus whiteheadi | 98.71 | | 16.65 | |
| Chelidonichthys capensis | 54.19 | 170 | 9.14 | 6890 |
| Galeorhinus galeus | 32.90 | 2 | 5.55 | |
| Callorhinchus capensis | 12.39 | 8 | 2.09 | |
| Todaropsis eblanae | 5.81 | 155 | 0.98 | 6892 |
| Thyrsites atun | 5.03 | 2 | 0.85 | 6888 |
| Genypterus capensis | 3.29 | 23 | 0.55 | 6889 |
| Todaropsis eblanae | 1.94 | 50 | 0.33 | 6891 |
| Austroglossus microlepis | 1.94 | 2 | 0.33 | 6886 |
| Sepia australis | 0.52 | 25 | 0.09 | |
| Macropipus sp. | 0.33 | 14 | 0.06 | |
| Trachurus trachurus | 0.25 | 4 | 0.04 | 6887 |
| Lolliguncula mercatoris | 0.12 | 54 | 0.02 | |
| Sufflogobius bibarbatus | 0.08 | 6 | 0.01 | |
| Total | 592.98 | | 100.01 | |

PROJECT STATION: 808

DATE:21/ 4/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2729
start stop duration Long E 1458
TIME :10:36:14 11:06:05 30 (min) Purpose code:
LOG : 885.54 887.05 1.51 Area code :
FDEPTH: 245 241 GearCond.code:
BDEPTH: 245 241 Validity code:
Towing dir: 170ø Wire out: 680 m Speed: 30 kn*10

Sorted: Kg Total catch: 314.39 CATCH/HOUR: 628.78

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 402.00 | 5560 | 63.93 | 6894 |
| Merluccius capensis | 62.00 | 108 | 9.86 | 6893 |
| Thyrsites atun | 27.00 | 20 | 4.29 | 6897 |
| Raja pullopunctata | 18.00 | 2 | 2.86 | |
| Chelidonichthys capensis | 12.00 | 16 | 1.91 | 6899 |
| Raja straeleni | 12.00 | 8 | 1.91 | |
| Coelorinchus simorynchus | 11.00 | 144 | 1.75 | |
| Genypterus capensis | 10.40 | 40 | 1.65 | 6898 |
| Raja wallacei | 10.00 | 4 | 1.59 | |
| Mustelus mustelus | 10.00 | | 1.59 | |
| Sufflogobius bibarbatus | 9.20 | | 1.46 | |
| Trachurus trachurus | 8.00 | 32 | 1.27 | 6896 |
| Austroglossus microlepis | 7.60 | 24 | 1.21 | 6895 |
| Squalus megalops | 6.60 | 16 | 1.05 | |
| Sepia australis | 5.00 | | 0.80 | |
| Lepidopus caudatus | 5.00 | 82 | 0.80 | |
| Todaropsis eblanae | 4.50 | 120 | 0.72 | 6901 |
| Todaropsis eblanae | 4.00 | 108 | 0.64 | 6900 |
| Holohalaelurus regani | 3.40 | 10 | 0.54 | |
| Etrumeus whiteheadi | 0.78 | 14 | 0.12 | |
| Chlorophthalmus agassizi | 0.20 | 18 | 0.03 | |
| Exodromidia sp. | 0.02 | 2 | | |
| Lolliguncula mercatoris | 0.02 | 12 | | |
| Helicolenus dactylopterus | 0.02 | 4 | | |
| Symbolophorus boops | 0.02 | 2 | | |
| Maurolicus muelleri | 0.02 | 14 | | |
| Lampanyctodes hectoris | 0.00 | 4 | | |
| Total | 628.78 | | 99.98 | |

PROJECT STATION: 809

DATE:21/ 4/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2733
start stop duration Long E 1448
TIME :12:52:44 13:22:30 30 (min) Purpose code:
LOG : 898.01 899.55 1.53 Area code :
FDEPTH: 323 327 GearCond.code:
BDEPTH: 323 327 Validity code:
Towing dir: 160ø Wire out: 900 m Speed: 30 kn*10

Sorted: Kg Total catch: 1629.71 CATCH/HOUR: 3259.42

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Trachurus trachurus | 2718.00 | 7038 | 83.39 | 6904 |
| Merluccius paradoxus | 352.00 | 3196 | 10.80 | 6902 |
| Merluccius paradoxus | 96.00 | 162 | 2.95 | 6903 |
| Brama brama | 40.00 | 32 | 1.23 | 6905 |
| Lepidopus caudatus | 14.00 | 16 | 0.43 | |
| Symbolophorus boops | 7.40 | | 0.23 | |
| Squilla sp. | 6.60 | 734 | 0.20 | |
| Todaropsis eblanae | 6.00 | 82 | 0.18 | 6909 |
| Genypterus capensis | 6.00 | 10 | 0.18 | 6907 |
| Thyrsites atun | 4.40 | 2 | 0.13 | 6906 |
| Todarodes angolensis - females | 4.00 | 6 | 0.12 | 6911 |
| Coelorinchus simorynchus | 2.00 | | 0.06 | |
| Todarodes angolensis - males | 1.16 | 2 | 0.04 | 6910 |
| Helicolenus dactylopterus | 0.88 | 14 | 0.03 | 6908 |
| Lampanyctodes hectoris | 0.40 | | 0.01 | |
| Maurolicus muelleri | 0.40 | | 0.01 | |
| Epigonus sp. | 0.10 | 2 | | |
| Malacocephalus laevis | 0.06 | 2 | | |
| Macropipus sp. | 0.02 | 4 | | |
| Total | 3259.42 | | 99.99 | |

PROJECT STATION: 810

DATE:21/ 4/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2734
start stop duration Long E 1442
TIME :14:47:16 15:17:11 30 (min) Purpose code:
LOG : 906.62 908.22 1.59 Area code :
FDEPTH: 342 344 GearCond.code:
BDEPTH: 342 344 Validity code:
Towing dir: 330ø Wire out: 950 m Speed: 32 kn*10

Sorted: Kg Total catch: 3692.01 CATCH/HOUR: 7384.02

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Trachurus trachurus | 4712.00 | 16760 | 63.81 | 6915 |
| Lepidopus caudatus | 2102.00 | | 28.47 | |
| Merluccius paradoxus | 405.00 | 5280 | 5.48 | 6913 |
| Thyrsites atun | 86.00 | 60 | 1.16 | 6916 |
| Merluccius capensis | 30.00 | 18 | 0.41 | 6912 |
| Helicolenus dactylopterus | 15.00 | 120 | 0.20 | 6918 |
| Coelorinchus simorynchus | 10.20 | | 0.14 | |
| Todaropsis eblanae | 7.20 | 88 | 0.10 | 6920 |
| Lophius vomerinus | 6.00 | 2 | 0.08 | 6919 |
| Merluccius paradoxus | 6.00 | 8 | 0.08 | 6914 |
| Todarodes angolensis - females | 2.66 | 2 | 0.04 | 6921 |
| Genypterus capensis | 1.66 | 4 | 0.02 | 6917 |
| Squilla sp. | 0.30 | | | |
| Total | 7384.02 | | 99.99 | |

PROJECT STATION: 811

DATE:21/ 4/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2740
start stop duration Long E 1433
TIME :16:49:44 17:11:16 22 (min) Purpose code:
LOG : 920.49 921.58 1.10 Area code :
FDEPTH: 446 445 GearCond.code:
BDEPTH: 446 445 Validity code:
Towing dir: 155ø Wire out:1180 m Speed: 30 kn*10

Sorted: Kg Total catch: 56.68 CATCH/HOUR: 154.57

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 54.55 | 145 | 35.29 | 6922 |
| Merluccius paradoxus | 43.64 | 300 | 28.23 | 6923 |
| Coelorinchus simorynchus | 27.27 | | 17.64 | |
| Genypterus capensis | 13.64 | 5 | 8.82 | 6924 |
| Todarodes angolensis - males | 5.15 | 8 | 3.33 | 6925 |
| Todarodes angolensis - females | 2.48 | 3 | 1.60 | 6926 |
| Coelorinchus braueri | 1.99 | 150 | 1.29 | |
| Selachophidium guentheri | 1.91 | 63 | 1.24 | |
| Etmopterus sp. | 1.12 | 8 | 0.72 | |
| Photichthys argenteus | 0.85 | 82 | 0.55 | |
| Funchalia woodwardi | 0.57 | | 0.37 | |
| Lycoteuthis diadema * | 0.27 | 16 | 0.17 | |
| Malacocephalus laevis | 0.25 | 5 | 0.16 | |
| Lucigadus ori | 0.22 | 22 | 0.14 | |
| Myctophum sp. | 0.14 | 14 | 0.09 | |
| Shrimps, small, non comm. | 0.11 | | 0.07 | |
| Squilla sp. | 0.11 | | 0.07 | |
| Symbolophorus boops | 0.11 | 11 | 0.07 | |
| Physiculus capensis | 0.05 | 5 | 0.03 | |
| MYCTOPHIDAE | 0.05 | | 0.03 | |
| Stereomastis sp. | 0.03 | 14 | 0.02 | |
| Epigonus sp. | 0.03 | 3 | 0.02 | |
| Lestidiops sp. | 0.03 | | 0.02 | |
| Hoplostethus mediterraneus | 0.00 | 3 | | |
| Total | 154.57 | | 99.97 | |

PROJECT STATION: 812

DATE:22/ 4/04 GEAR TYPE: BT No: 8 POSITION:Lat S 2822
start stop duration Long E 1449
TIME :05:22:39 05:52:25 30 (min) Purpose code:
LOG : 969.00 970.46 1.46 Area code :
FDEPTH: 194 197 GearCond.code:
BDEPTH: 194 197 Validity code:
Towing dir: 340ø Wire out: 560 m Speed: 30 kn*10
Sorted: Kg Total catch: 392.55 CATCH/HOUR: 785.10

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 306.00 | 18044 | 38.98 | 6929 |
| Merluccius capensis | 185.36 | 308 | 23.61 | 6927 |
| Sepia australis | 81.00 | | 10.32 | |
| Chelidonichthys capensis | 38.00 | 90 | 4.84 | 6937 |
| Galeorhinus galeus | 26.00 | 2 | 3.31 | |
| Lophius vomerinus | 20.00 | 36 | 2.55 | 6939 |
| Holohalaelurus regani | 19.00 | 72 | 2.42 | |
| Trachurus trachurus | 18.00 | 110 | 2.29 | 6933 |
| Etrumeus whiteheadi | 12.60 | 162 | 1.60 | |
| Genypterus capensis | 12.00 | 48 | 1.53 | 6935 |
| Thyrsites atun | 12.00 | 8 | 1.53 | 6934 |
| Raja straeleni | 12.00 | 10 | 1.53 | |
| Paracallionymus costatus | 8.18 | | 1.04 | |
| Coelorinchus simorynchus | 7.02 | | 0.89 | |
| Merluccius capensis | 6.64 | 2 | 0.85 | 6928 |
| Merluccius paradoxus | 4.00 | 12 | 0.51 | 6930 |
| Zeus capensis | 3.14 | 90 | 0.40 | 6931 |
| Todarodes angolensis - females | 3.00 | 4 | 0.38 | 6940 |
| Squalus megalops | 2.80 | 6 | 0.36 | |
| Todaropsis eblanae | 1.88 | 62 | 0.24 | |
| Callorhinchus capensis | 1.70 | 2 | 0.22 | |
| Chelidonichthys queketti | 1.54 | 8 | 0.20 | 6938 |
| Helicolenus dactylopterus | 0.90 | 214 | 0.11 | 6936 |
| Congiopodus spinifer | 0.70 | 4 | 0.09 | |
| Cynoglossus zanzibarensis | 0.64 | 28 | 0.08 | 6932 |
| Lepidopus caudatus | 0.54 | 10 | 0.07 | |
| Sepia hieronis | 0.22 | 8 | 0.03 | |
| Sufflogobius bibarbatus | 0.12 | 20 | 0.02 | |
| Lolliguncula mercatoris | 0.08 | 36 | 0.01 | |
| Notopogon macrosolen | 0.04 | 8 | 0.01 | |
| Total | 785.10 | | 100.02 | |

PROJECT STATION: 813

DATE:22/ 4/04 GEAR TYPE: BT No:14 POSITION:Lat S 2819
start stop duration Long E 1457
TIME :07:29:12 07:52:10 23 (min) Purpose code:
LOG : 980.21 981.43 1.20 Area code :
FDEPTH: 183 181 GearCond.code:
BDEPTH: 183 181 Validity code:
Towing dir: 135ø Wire out: 550 m Speed: 30 kn*10
Sorted: Kg Total catch: 278.36 CATCH/HOUR: 726.16

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 362.61 | 3503 | 49.94 | 6941 |
| Merluccius paradoxus, juvenile | 74.61 | 5859 | 10.27 | 6944 |
| Merluccius paradoxus | 70.43 | 1273 | 9.70 | 6943 |
| Merluccius capensis | 54.78 | 86 | 7.54 | 6942 |
| Sepia australis | 49.57 | | 6.83 | |
| Etrumeus whiteheadi | 35.48 | 446 | 4.89 | |
| Chelidonichthys capensis | 16.43 | 42 | 2.26 | 6950 |
| Callorhinchus capensis | 10.43 | 8 | 1.44 | |
| Lophius vomerinus | 7.83 | 5 | 1.08 | 6952 |
| Trachurus trachurus | 7.04 | 42 | 0.97 | 6947 |
| Genypterus capensis | 6.26 | 10 | 0.86 | 6948 |
| Zeus capensis | 4.96 | 21 | 0.68 | 6945 |
| Helicolenus dactylopterus | 4.43 | 91 | 0.61 | 6949 |
| Chelidonichthys queketti | 3.91 | 23 | 0.54 | 6951 |
| Coelorinchus simorynchus | 3.13 | 29 | 0.43 | |
| Lepidopus caudatus | 2.77 | 42 | 0.38 | |
| Raja wallacei | 2.61 | 3 | 0.36 | |
| Raja straeleni | 2.61 | 3 | 0.36 | |
| Holohalaelurus regani | 2.22 | 8 | 0.31 | |
| Todaropsis eblanae | 1.41 | 34 | 0.19 | 6953 |
| Congiopodus spinifer | 1.20 | 3 | 0.17 | |
| Cynoglossus zanzibarensis | 0.70 | 5 | 0.10 | 6946 |
| Macropipus sp. | 0.29 | 8 | 0.04 | |
| Sufflogobius bibarbatus | 0.26 | 50 | 0.04 | |
| Paracallionymus costatus | 0.10 | 37 | 0.01 | |
| Lolliguncula mercatoris | 0.03 | 21 | | |
| Lampanyctodes hectoris | 0.03 | | | |
| Maurolicus muelleri | 0.03 | | | |
| Total | 726.16 | | 100.00 | |

PROJECT STATION: 814

DATE:22/ 4/04 GEAR TYPE: BT No:14 POSITION:Lat S 2816
start stop duration Long E 1506
TIME :10:19:00 10:49:40 31 (min) Purpose code:
LOG : 996.09 996.09 Area code :
FDEPTH: 180 180 GearCond.code:
BDEPTH: 180 180 Validity code:
Towing dir: 235ø Wire out: 550 m Speed: 30 kn*10
Sorted: Kg Total catch: 630.84 CATCH/HOUR: 1220.98

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 375.48 | 4334 | 30.75 | 6954 |
| Lepidopus caudatus | 191.61 | | 15.69 | |
| Merluccius paradoxus | 124.84 | 6677 | 10.22 | 6956 |
| Etrumeus whiteheadi | 106.45 | | 8.72 | |
| Merluccius capensis | 104.52 | 166 | 8.56 | 6955 |
| Thyrsites atun | 92.90 | 52 | 7.61 | 6959 |
| Sepia australis | 60.58 | | 4.96 | |
| Chelidonichthys capensis | 37.74 | 97 | 3.09 | 6962 |
| Raja pullopunctata | 23.23 | 2 | 1.90 | |
| Galeorhinus galeus | 23.23 | 2 | 1.90 | |
| Callorhinchus capensis | 15.48 | 8 | 1.27 | |
| Galeorhinus galeus | 13.55 | 2 | 1.11 | |
| Genypterus capensis | 12.58 | 14 | 1.03 | 6960 |
| Lophius vomerinus | 8.48 | 23 | 0.69 | 6964 |
| Todarodes angolensis | 4.14 | | 0.34 | |
| Paracallionymus costatus | 3.95 | 654 | 0.32 | |
| Todaropsis eblanae | 3.68 | | 0.30 | |
| Raja straeleni | 2.71 | 4 | 0.22 | |
| Cynoglossus zanzibarensis | 2.69 | 27 | 0.22 | 6958 |
| Macropipus sp. | 2.42 | 97 | 0.20 | |
| Squilla sp. | 1.94 | 213 | 0.16 | |
| Chelidonichthys queketti | 1.94 | 12 | 0.16 | 6963 |
| Coelorinchus simorynchus | 1.43 | 29 | 0.12 | |
| Todarodes angolensis - males | 1.05 | 2 | 0.09 | 6967 |
| Helicolenus dactylopterus | 0.97 | 105 | 0.08 | 6961 |
| Zeus capensis | 0.68 | 37 | 0.06 | 6957 |
| Todaropsis eblanae | 0.50 | 8 | 0.04 | 6965 |
| Lolliguncula mercatoris | 0.46 | 221 | 0.04 | |
| Todaropsis eblanae | 0.43 | 8 | 0.04 | 6966 |
| Scyliorhinus capensis | 0.43 | 2 | 0.04 | |
| Holohalaelurus regani | 0.33 | 2 | 0.03 | |
| Trachurus trachurus | 0.25 | | 0.02 | |
| Sepia hieronis | 0.15 | 19 | 0.01 | |
| Champsodon capensis | 0.10 | 8 | 0.01 | |
| Sufflogobius bibarbatus | 0.06 | | | |
| Total | 1220.98 | | 100.00 | |

PROJECT STATION: 815

DATE:22/ 4/04 GEAR TYPE: BT No:14 POSITION:Lat S 2803
start stop duration Long E 1535
TIME :15:07:57 15:29:40 22 (min) Purpose code:
LOG :1031.93 1033.06 1.10 Area code :
FDEPTH: 92 92 GearCond.code:
BDEPTH: 92 92 Validity code:
Towing dir: 245ø Wire out: 305 m Speed: 30 kn*10
Sorted: Kg Total catch: 55.54 CATCH/HOUR: 151.47

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Chelidonichthys capensis | 46.36 | 185 | 30.61 | 6975 |
| Sepia australis | 30.00 | | 19.81 | |
| Merluccius capensis | 23.18 | 237 | 15.30 | 6968 |
| Exodromidia sp. | 16.36 | | 10.80 | |
| Genypterus capensis | 10.91 | 5 | 7.20 | 6974 |
| C R A B S | 5.45 | | 3.60 | |
| Raja straeleni | 5.05 | 3 | 3.33 | |
| Squilla sp. | 2.59 | 278 | 1.71 | |
| Macropipus sp. | 2.35 | 155 | 1.55 | |
| Lolliguncula mercatoris | 2.05 | | 1.35 | |
| Mursia cristimanus | 1.85 | 87 | 1.22 | |
| Austroglossus microlepis | 1.23 | 8 | 0.81 | 6970 |
| Etrumeus whiteheadi | 0.93 | 16 | 0.61 | |
| Todaropsis eblanae | 0.90 | 33 | 0.59 | 6977 |
| Thyrsites atun | 0.38 | 3 | 0.25 | 6973 |
| Todaropsis eblanae | 0.35 | 16 | 0.23 | 6976 |
| Lepidopus caudatus | 0.35 | 27 | 0.23 | |
| Zeus capensis | 0.33 | 46 | 0.22 | 6969 |
| Trachurus trachurus | 0.30 | 3 | 0.20 | 6972 |
| Cynoglossus zanzibarensis | 0.27 | 3 | 0.18 | 6971 |
| Sardinops ocellatus | 0.22 | 3 | 0.15 | |
| Congiopodus spinifer | 0.03 | | 0.02 | |
| Sufflogobius bibarbatus | 0.03 | 35 | 0.02 | |
| Total | 151.47 | | 99.99 | |

PROJECT STATION: 816

DATE:23/ 4/04 GEAR TYPE: BT No:14 POSITION:Lat S 2848
start stop duration Long E 1620
TIME :05:25:56 05:30:03 4 (min) Purpose code:
LOG :1103.48 1103.66 0.17 Area code :
FDEPTH: 84 84 GearCond.code:
BDEPTH: 84 84 Validity code:
Towing dir: 140ø Wire out: 270 m Speed: 30 kn*10
Sorted: Kg Total catch: 198.37 CATCH/HOUR: 2975.55

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 2505.00 | 21435 | 84.19 | 6978 |
| J E L L Y F I S H | 285.00 | | 9.58 | |
| Austroglossus microlepis | 69.00 | 555 | 2.32 | 6980 |
| Chelidonichthys capensis | 43.50 | 375 | 1.46 | 6981 |
| Merluccius capensis, juveniles | 18.00 | 420 | 0.60 | 6979 |
| Shrimps, small, non comm. | 15.00 | | 0.50 | |
| Etrumeus whiteheadi | 15.00 | | 0.50 | |
| Lolliguncula mercatoris | 7.50 | | 0.25 | |
| Engraulis capensis | 7.50 | 2145 | 0.25 | |
| C R A B S | 7.35 | | 0.25 | |
| Sufflogobius bibarbatus | 1.05 | 585 | 0.04 | |
| Macropipus sp. | 0.75 | 105 | 0.03 | |
| Squilla sp. | 0.60 | 60 | 0.02 | |
| Exodromidia sp. | 0.15 | 15 | 0.01 | |
| Todaropsis eblanae | 0.15 | 15 | 0.01 | 6982 |
| Trachurus trachurus | 0.00 | 15 | | |
| Total | 2975.55 | | 100.01 | |

PROJECT STATION: 817

DATE:23/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2855
start stop duration Long E 1605
TIME :08:05:40 08:35:39 30 (min) Purpose code:
LOG :1121.67 1123.19 1.50 Area code :
FDEPTH: 150 149 GearCond.code:
BDEPTH: 150 149 Validity code:
Towing dir: 133ø Wire out: 440 m Speed: 30 kn*10
Sorted: Kg Total catch: 585.61 CATCH/HOUR: 1171.22

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus, juvenile | 804.00 | 36894 | 68.65 | 6985 |
| Sepia australis | 68.00 | | 5.81 | |
| Merluccius capensis | 56.60 | 498 | 4.83 | 6983 |
| Chelidonichthys capensis | 39.00 | 128 | 3.33 | 6992 |
| Merluccius capensis | 34.00 | 92 | 2.90 | 6984 |
| Lophius vomerinus | 27.60 | 140 | 2.36 | 6993 |
| Cynoglossus zanzibarensis | 22.60 | 710 | 1.93 | 6986 |
| Paracallionymus costatus | 19.20 | 948 | 1.64 | |
| Etrumeus whiteheadi | 19.20 | 294 | 1.64 | |
| Raja straeleni | 16.00 | 8 | 1.37 | |
| Callorhinchus capensis | 14.00 | 4 | 1.20 | |
| Thyrsites atun | 12.00 | 12 | 1.02 | 6988 |
| Genypterus capensis | 7.66 | 80 | 0.65 | 6989 |
| Macropipus sp. | 6.80 | 170 | 0.58 | |
| Genypterus capensis | 6.56 | 4 | 0.56 | 6990 |
| Coelorinchus simorynchus | 5.10 | 226 | 0.44 | |
| Squilla sp. | 4.42 | 362 | 0.38 | |
| Trachurus trachurus | 3.02 | 12 | 0.26 | 6987 |
| Todaropsis eblanae | 2.20 | 120 | 0.19 | 6994 |
| Maurolicus muelleri | 1.00 | | 0.09 | |
| Lolliguncula mercatoris | 0.70 | 3930 | 0.06 | |
| Sufflogobius bibarbatus | 0.54 | 136 | 0.05 | |
| Sepia hieronis | 0.52 | 12 | 0.04 | |
| Sardinops ocellatus | 0.26 | 12 | 0.02 | |
| Helicolenus dactylopterus | 0.12 | 108 | 0.01 | 6991 |
| Goneplax angulata | 0.06 | 28 | 0.01 | |
| Lepidopus caudatus | 0.06 | 12 | 0.01 | |
| Total | 1171.22 | | 100.03 | |

PROJECT STATION: 818

DATE:23/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2900

start stop duration Long E 1551

TIME :10:42:30 11:13:36 31 (min) Purpose code:

LOG :1138.45 1140.08 1.46 Area code :

FDEPTH: 175 176 GearCond.code:

BDEPTH: 175 176 Validity code:

Towing dir: 240ø Wire out: 600 m Speed: 30 kn*10

Sorted: Kg Total catch: 223.06 CATCH/HOUR: 431.72

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Etrumeus whiteheadi | 108.39 | | 25.11 | |
| Merluccius capensis | 46.45 | 343 | 10.76 | 6995 |
| Merluccius paradoxus | 44.52 | 1523 | 10.31 | 6997 |
| Coelorinchus simorynchus | 38.71 | | 8.97 | |
| Helicolenus dactylopterus | 33.87 | 1707 | 7.85 | 7003 |
| Sepia australis | 25.16 | | 5.83 | |
| Thyrsites atun | 19.94 | 19 | 4.62 | 7001 |
| Merluccius capensis | 18.00 | 29 | 4.17 | 6996 |
| Chelidonichthys capensis | 15.48 | 35 | 3.59 | 7004 |
| Paracallionymus costatus | 15.48 | | 3.59 | |
| Galeorhinus galeus | 11.61 | 2 | 2.69 | |
| Raja straeleni | 11.11 | 12 | 2.57 | |
| Lophius vomerinus | 5.81 | 58 | 1.35 | 7006 |
| Genypterus capensis | 4.84 | 25 | 1.12 | 7002 |
| Macropipus sp. | 3.87 | | 0.90 | |
| Lolliguncula mercatoris | 3.87 | | 0.90 | |
| Lepidopus caudatus | 3.87 | 2 | 0.90 | |
| Cynoglossus zanzibarensis | 3.87 | 165 | 0.90 | 6999 |
| Mustelus palumbes | 3.87 | 2 | 0.90 | |
| Holohalaelurus regani | 3.87 | 110 | 0.90 | |
| Todaropsis eblanae | 1.94 | 72 | 0.45 | 7009 |
| Todaropsis eblanae | 1.94 | 50 | 0.45 | 7008 |
| Sepia hieronis | 1.05 | 31 | 0.24 | |
| Zeus capensis | 0.89 | 12 | 0.21 | 6998 |
| Todaropsis eblanae | 0.87 | 77 | 0.20 | 7007 |
| Congiopodus spinifer | 0.70 | 10 | 0.16 | |
| Trachurus trachurus | 0.66 | 2 | 0.15 | 7000 |
| Squilla sp. | 0.25 | 23 | 0.06 | |
| Chelidonichthys queketti | 0.25 | 4 | 0.06 | 7005 |
| Maurolicus muelleri | 0.19 | | 0.04 | |
| Sardinops ocellatus | 0.17 | 2 | 0.04 | |
| Mursia cristimanus | 0.08 | 6 | 0.02 | |
| Goneplax angulata | 0.06 | 12 | 0.01 | |
| Exodromidia sp. | 0.04 | 2 | 0.01 | |
| Physiculus capensis | 0.04 | 4 | 0.01 | |
| Total | 431.72 | | 100.04 | |

PROJECT STATION: 819

DATE:23/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2903

start stop duration Long E 1542

TIME :12:45:08 13:16:48 32 (min) Purpose code:

LOG :1150.21 1151.95 1.71 Area code :

FDEPTH: 179 180 GearCond.code:

BDEPTH: 179 180 Validity code:

Towing dir: 70ø Wire out: 600 m Speed: 32 kn*10

Sorted: Kg Total catch: 352.17 CATCH/HOUR: 660.31

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus, juvenile | 168.75 | 7509 | 25.56 | 7013 |
| Merluccius capensis | 90.00 | 180 | 13.63 | 7011 |
| Chelidonichthys capensis | 63.75 | 184 | 9.65 | 7020 |
| Paracallionymus costatus | 63.75 | | 9.65 | |
| Etrumeus whiteheadi | 48.75 | 696 | 7.38 | |
| Sepia australis | 42.19 | | 6.39 | |
| Helicolenus dactylopterus | 28.13 | 1519 | 4.26 | 7019 |
| Merluccius paradoxus | 21.94 | 236 | 3.32 | 7012 |
| Cynoglossus zanzibarensis | 20.63 | 583 | 3.12 | 7015 |
| Merluccius capensis | 20.63 | 144 | 3.12 | 7010 |
| Lophius vomerinus | 16.37 | 92 | 2.48 | 7022 |
| Mustelus mustelus | 15.00 | | 2.27 | |
| Coelorinchus simorynchus | 14.06 | 358 | 2.13 | |
| Todaropsis eblanae | 9.51 | | 1.44 | |
| Genypterus capensis | 8.79 | 73 | 1.33 | 7018 |
| Thyrsites atun | 6.19 | 4 | 0.94 | 7017 |
| Raja straeleni | 5.63 | 9 | 0.85 | |
| Holohalaelurus regani | 5.63 | 68 | 0.85 | |
| Trachurus trachurus | 3.84 | 17 | 0.58 | 7016 |
| Chelidonichthys queketti | 1.88 | 13 | 0.28 | 7021 |
| Todaropsis eblanae | 1.41 | 32 | 0.21 | 7023 |
| Sepia hieronis | 1.16 | 36 | 0.18 | |
| Todaropsis eblanae | 1.13 | 21 | 0.17 | 7024 |
| Congiopodus spinifer | 0.28 | 8 | 0.04 | |
| Squilla sp. | 0.23 | 15 | 0.03 | |
| Macropipus sp. | 0.19 | 8 | 0.03 | |
| Maurolicus muelleri | 0.19 | | 0.03 | |
| Lolliguncula mercatoris | 0.15 | 71 | 0.02 | |
| Mursia cristimanus | 0.09 | 8 | 0.01 | |
| Goneplax angulata | 0.04 | 8 | 0.01 | |
| Zeus capensis | 0.02 | 6 | | 7014 |
| Total | 660.31 | | 99.96 | |

PROJECT STATION: 820

DATE:23/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2910

start stop duration Long E 1528

TIME :15:28:58 15:58:22 29 (min) Purpose code:

LOG :1169.51 1171.03 1.50 Area code :

FDEPTH: 185 186 GearCond.code:

BDEPTH: 185 186 Validity code:

Towing dir: 250ø Wire out: 600 m Speed: 30 kn*10

Sorted: Kg Total catch: 380.43 CATCH/HOUR: 787.10

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Emmelichthys nitidus | 163.45 | 8172 | 20.77 | |
| Merluccius capensis | 134.48 | 194 | 17.09 | 7025 |
| Merluccius paradoxus, juvenile | 120.00 | 8830 | 15.25 | 7028 |
| Sepia australis | 53.79 | | 6.83 | |
| Merluccius paradoxus | 50.28 | 590 | 6.39 | 7026 |
| Helicolenus dactylopterus | 37.24 | 1719 | 4.73 | 7034 |
| Chelidonichthys queketti | 30.21 | 240 | 3.84 | 7036 |
| Chelidonichthys capensis | 28.97 | 70 | 3.68 | 7035 |
| Thyrsites atun | 24.00 | 14 | 3.05 | 7032 |
| Lophius vomerinus | 22.76 | 29 | 2.89 | 7037 |
| Coelorinchus simorynchus | 21.93 | 428 | 2.79 | |
| Etrumeus whiteheadi | 21.93 | 329 | 2.79 | |
| Holohalaelurus regani | 21.93 | 99 | 2.79 | |
| Callorhinchus capensis | 8.28 | 4 | 1.05 | |
| Cynoglossus zanzibarensis | 8.09 | 151 | 1.03 | 7030 |
| Macropipus sp. | 6.79 | 219 | 0.86 | |
| Zeus capensis | 6.68 | 197 | 0.85 | 7029 |
| Raja straeleni | 6.21 | 4 | 0.79 | |
| Paracallionymus costatus | 5.15 | | 0.65 | |
| Todaropsis eblanae | 4.16 | 108 | 0.53 | 7038 |
| Sepia hieronis | 2.23 | 110 | 0.28 | |
| Lepidopus caudatus | 2.07 | | 0.26 | |
| Trachurus trachurus | 2.07 | 4 | 0.26 | 7031 |
| Merluccius paradoxus | 2.07 | 6 | 0.26 | 7027 |
| Genypterus capensis | 1.03 | 6 | 0.13 | 7033 |
| Squilla sp. | 0.52 | 66 | 0.07 | |
| Lolliguncula mercatoris | 0.39 | 197 | 0.05 | |
| Maurolicus muelleri | 0.21 | | 0.03 | |
| Champsodon capensis | 0.12 | 10 | 0.02 | |
| Goneplax angulata | 0.06 | 10 | 0.01 | |
| Total | 787.10 | | 100.02 | |

PROJECT STATION: 821

DATE:24/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2918

start stop duration Long E 1504

TIME :05:24:41 05:54:31 30 (min) Purpose code:

LOG :1204.67 1206.23 1.54 Area code :

FDEPTH: 177 177 GearCond.code:

BDEPTH: 177 177 Validity code:

Towing dir: 280ø Wire out: 520 m Speed: 30 kn*10

Sorted: Kg Total catch: 424.16 CATCH/HOUR: 848.32

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Trachurus trachurus | 224.00 | 2604 | 26.41 | 7044 |
| Merluccius capensis | 164.00 | 208 | 19.33 | 7039 |
| Chelidonichthys capensis | 72.00 | 144 | 8.49 | 7048 |
| Emmelichthys nitidus | 60.00 | 3000 | 7.07 | |
| Helicolenus dactylopterus | 50.00 | 3062 | 5.89 | 7047 |
| Zeus capensis | 50.00 | 370 | 5.89 | 7042 |
| Lophius vomerinus | 32.00 | 46 | 3.77 | 7050 |
| Holohalaelurus regani | 28.00 | 90 | 3.30 | |
| Chelidonichthys queketti | 24.00 | 178 | 2.83 | 7049 |
| Squalus megalops | 24.00 | 72 | 2.83 | |
| Merluccius paradoxus, juvenile | 20.00 | 6622 | 2.36 | 7041 |
| Thyrsites atun | 14.00 | 4 | 1.65 | 7045 |
| Merluccius paradoxus | 11.00 | 28 | 1.30 | 7040 |
| Sepia australis | 10.00 | | 1.18 | |
| Etrumeus whiteheadi | 9.02 | 112 | 1.06 | |
| Congiopodus spinifer | 8.82 | | 1.04 | |
| Callorhinchus capensis | 8.00 | 4 | 0.94 | |
| Arnoglossus capensis | 7.50 | 658 | 0.88 | |
| Mustelus palumbes | 6.00 | 2 | 0.71 | |
| Cynoglossus zanzibarensis | 5.48 | 40 | 0.65 | 7043 |
| Genypterus capensis | 4.00 | 6 | 0.47 | 7046 |
| Lepidopus caudatus | 4.00 | | 0.47 | |
| Scyliorhinus capensis | 4.00 | 30 | 0.47 | |
| Todaropsis eblanae | 2.54 | 70 | 0.30 | 7052 |
| Paracallionymus costatus | 2.54 | 690 | 0.30 | |
| Raja straeleni | 2.00 | 2 | 0.24 | |
| Loligo vulgaris | 1.26 | 2 | 0.15 | 7051 |
| Squilla sp. | 0.16 | 10 | 0.02 | |
| Total | 848.32 | | 100.00 | |

PROJECT STATION: 822

DATE:24/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2922

start stop duration Long E 1455

TIME :07:22:02 07:53:25 31 (min) Purpose code:

LOG :1216.04 1217.61 1.56 Area code :

FDEPTH: 198 197 GearCond.code:

BDEPTH: 198 197 Validity code:

Towing dir: 335ø Wire out: 570 m Speed: 30 kn*10

Sorted: Kg Total catch: 447.06 CATCH/HOUR: 865.27

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Lepidopus caudatus | 278.71 | | 32.21 | |
| Callorhinchus capensis | 120.00 | 75 | 13.87 | |
| Trachurus trachurus | 87.10 | 778 | 10.07 | 7058 |
| Merluccius capensis | 77.42 | 60 | 8.95 | 7053 |
| Thyrsites atun | 69.68 | 35 | 8.05 | 7060 |
| Zeus capensis | 67.74 | 366 | 7.83 | 7056 |
| Lophius vomerinus | 30.97 | 41 | 3.58 | 7065 |
| Chelidonichthys queketti | 19.35 | 132 | 2.24 | 7064 |
| Emmelichthys nitidus | 19.35 | | 2.24 | |
| Holohalaelurus regani | 15.48 | 75 | 1.79 | |
| Squalus megalops | 11.61 | 29 | 1.34 | |
| Sepia australis | 9.68 | | 1.12 | |
| Chelidonichthys capensis | 8.71 | 12 | 1.01 | 7063 |
| Brama brama | 8.52 | 4 | 0.98 | 7059 |
| Merluccius paradoxus | 8.32 | 68 | 0.96 | 7054 |
| Congiopodus spinifer | 4.84 | | 0.56 | |
| Cynoglossus zanzibarensis | 3.87 | 31 | 0.45 | 7057 |
| Arnoglossus capensis | 3.87 | | 0.45 | |
| Raja wallacei | 3.87 | 4 | 0.45 | |
| Paracallionymus costatus | 2.90 | | 0.34 | |
| Genypterus capensis | 2.52 | 4 | 0.29 | 7061 |
| Raja straeleni | 1.94 | 2 | 0.22 | |
| Parapagurus dimorphus | 1.74 | | 0.20 | |
| Helicolenus dactylopterus | 1.61 | 252 | 0.19 | 7062 |
| Todaropsis eblanae | 1.32 | 21 | 0.15 | 7067 |
| Todaropsis eblanae | 0.89 | 19 | 0.10 | 7066 |
| Gonorhynchus gonorhynchus | 0.75 | 2 | 0.09 | |
| Etrumeus whiteheadi | 0.70 | 8 | 0.08 | |
| Merluccius paradoxus, juvenile | 0.68 | 93 | 0.08 | 7055 |
| Malacocephalus laevis | 0.62 | 2 | 0.07 | |
| Notopogon macrosolen | 0.27 | 4 | 0.03 | |
| Rossia enigmatica | 0.12 | 10 | 0.01 | |
| Macropipus sp. | 0.06 | 2 | 0.01 | |
| Champsodon capensis | 0.04 | 2 | | |
| Lolligoncula mercatoris | 0.02 | 8 | | |
| Lampanyctodes hectoris | 0.00 | 6 | | |
| Total | 865.27 | | 100.01 | |

PROJECT STATION: 824

DATE:24/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2929

start stop duration Long E 1435

TIME :12:40:11 13:10:10 30 (min) Purpose code:

LOG :1249.97 1251.47 1.48 Area code :

FDEPTH: 432 430 GearCond.code:

BDEPTH: 432 430 Validity code:

Towing dir: 160ø Wire out:1150 m Speed: 30 kn*10

Sorted: Kg Total catch: 804.59 CATCH/HOUR: 1609.18

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 1092.00 | 5278 | 67.86 | 7083 |
| Merluccius paradoxus | 348.00 | 582 | 21.63 | 7084 |
| Genypterus capensis | 36.00 | 20 | 2.24 | 7085 |
| Bassanago albescens | 31.00 | 56 | 1.93 | |
| Lophius vomerinus | 27.00 | 30 | 1.68 | 7087 |
| Coelorinchus simorynchus | 21.20 | | 1.32 | |
| Rossia enigmatica | 8.00 | | 0.50 | |
| Helicolenus dactylopterus | 8.00 | 36 | 0.50 | 7086 |
| Merluccius capensis | 6.00 | 2 | 0.37 | 7082 |
| Symbolophorus boops | 6.00 | 430 | 0.37 | |
| Lucigadus ori | 4.00 | 364 | 0.25 | |
| Todarodes angolensis - males | 3.80 | 6 | 0.24 | 7090 |
| Lepidopus caudatus | 3.40 | 4 | 0.21 | |
| Coelorinchus braueri | 3.00 | 250 | 0.19 | |
| Malacocephalus laevis | 2.40 | | 0.15 | |
| Holohalaelurus regani | 2.00 | 6 | 0.12 | |
| Epigonus sp. | 1.56 | | 0.10 | |
| Parapagurus pilosimanus | 1.08 | | 0.07 | |
| Todaropsis eblanae | 1.04 | 8 | 0.06 | 7089 |
| Tripterophycis gilchristi | 0.80 | 32 | 0.05 | |
| Todaropsis eblanae | 0.60 | 4 | 0.04 | 7088 |
| Stereomastis sp. | 0.54 | 132 | 0.03 | |
| Paracallionymus costatus | 0.46 | 80 | 0.03 | |
| Myxine capensis | 0.28 | 4 | 0.02 | |
| Lycoteuthis diadema * | 0.22 | 36 | 0.01 | |
| Hoplostethus mediterraneus | 0.14 | 76 | 0.01 | |
| Stoloteuthis sp. | 0.12 | 44 | 0.01 | |
| Conger wilsoni | 0.12 | 2 | 0.01 | |
| Photichthys argenteus | 0.12 | 6 | 0.01 | |
| Shrimps, small, non comm. | 0.06 | | | |
| Psychrolutes macrocephalus | 0.06 | 2 | | |
| Physiculus capensis | 0.06 | 8 | | |
| Mursia cristimanus | 0.04 | 4 | | |
| Selachophidium guentheri | 0.04 | 6 | | |
| Funchalia woodwardi | 0.02 | 2 | | |
| Lampanyctodes hectoris | 0.02 | 16 | | |
| Bathynectes sp. | 0.00 | 2 | | |
| Total | 1609.18 | | 100.01 | |

PROJECT STATION: 823

DATE:24/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2922

start stop duration Long E 1438

TIME :10:49:30 11:19:28 30 (min) Purpose code:

LOG :1241.76 1243.23 1.46 Area code :

FDEPTH: 326 325 GearCond.code:

BDEPTH: 326 325 Validity code:

Towing dir: 150ø Wire out: 850 m Speed: 30 kn*10

Sorted: Kg Total catch: 627.20 CATCH/HOUR: 1254.40

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 394.00 | 2642 | 31.41 | 7069 |
| Zeus capensis | 184.00 | 302 | 14.67 | 7071 |
| Malacocephalus laevis | 146.00 | | 11.64 | |
| Merluccius capensis | 102.00 | 54 | 8.13 | 7068 |
| Merluccius paradoxus | 100.00 | 132 | 7.97 | 7070 |
| Helicolenus dactylopterus | 70.00 | 594 | 5.58 | 7077 |
| Coelorinchus simorynchus | 70.00 | | 5.58 | |
| Epigonus sp. | 66.00 | 1320 | 5.26 | |
| Holohalaelurus regani | 46.00 | | 3.67 | |
| Cynoglossus zanzibarensis | 24.00 | 324 | 1.91 | 7072 |
| Squalus megalops | 14.00 | 24 | 1.12 | |
| Lepidopus caudatus | 6.00 | 14 | 0.48 | |
| Galeus polli | 6.00 | 34 | 0.48 | |
| Thyrsites atun | 5.40 | 2 | 0.43 | 7075 |
| Todaropsis eblanae | 5.18 | 48 | 0.41 | 7080 |
| Todaropsis eblanae | 4.44 | 44 | 0.35 | 7079 |
| Lophius vomerinus | 2.30 | 2 | 0.18 | 7078 |
| Brama brama | 1.90 | 2 | 0.15 | 7074 |
| Rossia enigmatica | 1.62 | 70 | 0.13 | |
| Genypterus capensis | 1.38 | | 0.11 | 7076 |
| Trachurus trachurus | 1.10 | 10 | 0.09 | 7073 |
| Todarodes angolensis - males | 0.94 | | 0.07 | 7081 |
| Bathynectes sp. | 0.56 | 20 | 0.04 | |
| Scyliorhinus capensis | 0.48 | 2 | 0.04 | |
| Beryx splendens | 0.26 | 2 | 0.02 | |
| Sepia hieronis | 0.20 | 4 | 0.02 | |
| Cyttus traversi | 0.18 | 12 | 0.01 | |
| Selachophidium guentheri | 0.10 | 2 | 0.01 | |
| Paracallionymus costatus | 0.10 | 92 | 0.01 | |
| Lampanyctodes hectoris | 0.08 | 62 | 0.01 | |
| Symbolophorus boops | 0.06 | | | |
| Goneplax angulata | 0.04 | 2 | | |
| Sepia sp. New SA | 0.04 | 10 | | |
| Arnoglossus capensis | 0.04 | 2 | | |
| Squilla sp. | 0.00 | 4 | | |
| Sepia typica | 0.00 | 2 | | |
| Total | 1254.40 | | 99.98 | |

PROJECT STATION: 825

DATE:24/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2931

start stop duration Long E 1432

TIME :14:37:02 15:06:59 30 (min) Purpose code:

LOG :1257.85 1259.39 1.53 Area code :

FDEPTH: 525 521 GearCond.code:

BDEPTH: 525 521 Validity code:

Towing dir: 350ø Wire out:1350 m Speed: 30 kn*10

Sorted: Kg Total catch: 136.35 CATCH/HOUR: 272.70

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 92.00 | 132 | 33.74 | 7092 |
| Merluccius paradoxus | 70.00 | 386 | 25.67 | 7091 |
| Selachophidium guentheri | 28.00 | 840 | 10.27 | |
| Etmopterus sp. | 26.00 | 842 | 9.53 | |
| Nezumia sp. | 8.00 | 240 | 2.93 | |
| Coelorinchus braueri | 8.00 | 160 | 2.93 | |
| Myxine capensis | 6.20 | | 2.27 | |
| Todarodes angolensis - females | 5.00 | 4 | 1.83 | 7096 |
| Funchalia woodwardi | 4.00 | | 1.47 | |
| Photichthys argenteus | 3.32 | | 1.22 | |
| Bassanago albescens | 3.28 | 14 | 1.20 | |
| Todarodes angolensis - males | 2.64 | 6 | 0.97 | 7095 |
| Malacocephalus laevis | 2.46 | 24 | 0.90 | |
| Rossia enigmatica | 2.44 | | 0.89 | |
| Psychrolutes macrocephalus | 2.40 | | 0.88 | |
| Coelorinchus matamua | 1.60 | 14 | 0.59 | |
| Helicolenus dactylopterus | 1.48 | 6 | 0.54 | 7093 |
| Lithodes sp. | 1.36 | 10 | 0.50 | |
| Sergestes sp. | 1.08 | | 0.40 | |
| Lophius vomerinus | 1.06 | 6 | 0.39 | 7094 |
| Stereomastis sp. | 0.70 | | 0.26 | |
| Lucigadus ori | 0.60 | 50 | 0.22 | |
| Epigonus sp. | 0.34 | 32 | 0.12 | |
| Chaceon chuni | 0.26 | 4 | 0.10 | |
| Bathophilus longipinnis | 0.14 | 2 | 0.05 | |
| Tripterophycis gilchristi | 0.12 | 4 | 0.04 | |
| Bathynectes sp. | 0.04 | 2 | 0.01 | |
| Parapagurus pilosimanus | 0.04 | 2 | 0.01 | |
| Lycoteuthis diadema * | 0.04 | 2 | 0.01 | |
| C R A B S | 0.02 | | 0.01 | |
| Champsodon capensis | 0.02 | 2 | 0.01 | |
| Symbolophorus boops | 0.02 | 2 | 0.01 | |
| Bathyraja smithii | 0.02 | 2 | 0.01 | |
| Raja leopardus | 0.02 | 2 | 0.01 | |
| Diaphus sp. | 0.00 | 2 | | |
| MYCTOPHIDAE | 0.00 | 6 | | |
| Total | 272.70 | | 99.99 | |

PROJECT STATION: 826

DATE:24/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2922
start stop duration Long E 1432
TIME :16:14:46 16:44:21 30 (min) Purpose code:
LOG :1266.84 1268.43 1.57 Area code :
FDEPTH: 446 438 GearCond.code:
BDEPTH: 446 438 Validity code:
Towing dir: 345ø Wire out:1200 m Speed: 30 kn*10

Sorted: Kg Total catch: 121.30 CATCH/HOUR: 242.60

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 128.00 | 494 | 52.76 | 7098 |
| Merluccius paradoxus | 31.20 | 46 | 12.86 | 7099 |
| Lophius vomerinus | 12.16 | 10 | 5.01 | 7103 |
| Bassanago albescens | 10.00 | | 4.12 | |
| Coelorinchus simorynchus | 10.00 | | 4.12 | |
| Merluccius capensis | 8.80 | 2 | 3.63 | 7097 |
| Helicolenus dactylopterus | 7.00 | 40 | 2.89 | 7102 |
| Genypterus capensis | 6.60 | 4 | 2.72 | 7101 |
| Myxine capensis | 4.00 | | 1.65 | |
| Stereomastis sp. | 3.48 | | 1.43 | |
| Rossia enigmatica | 3.16 | | 1.30 | |
| Etmopterus sp. | 2.50 | | 1.03 | |
| Coelorinchus braueri | 2.32 | | 0.96 | |
| Todarodes angolensis - females | 2.00 | 2 | 0.82 | 7105 |
| Lucigadus ori | 2.00 | | 0.82 | |
| Notacanthus sexspinis | 1.74 | 32 | 0.72 | |
| Epigonus sp. | 1.04 | | 0.43 | |
| Malacocephalus laevis | 0.66 | 16 | 0.27 | |
| Tripterophycis gilchristi | 0.64 | 26 | 0.26 | |
| Parapagurus pilosimanus | 0.60 | | 0.25 | |
| Octopus vulgaris | 0.60 | | 0.25 | |
| Bathynectes sp. | 0.58 | 20 | 0.24 | |
| Psychrolutes macrocephalus | 0.54 | 10 | 0.22 | |
| Krill | 0.52 | | 0.21 | |
| Todaropsis eblanae | 0.52 | 2 | 0.21 | 7104 |
| Cynoglossus zanzibarensis | 0.52 | 6 | 0.21 | 7100 |
| Selachophidium guentheri | 0.30 | 58 | 0.12 | |
| Funchalia woodwardi | 0.28 | | 0.12 | |
| Physiculus capensis | 0.28 | 20 | 0.12 | |
| Paracallionymus costatus | 0.20 | 30 | 0.08 | |
| Hoplostethus mediterraneus | 0.20 | 260 | 0.08 | |
| Nezumia sp. | 0.10 | 8 | 0.04 | |
| Photichthys argenteus | 0.06 | 4 | 0.02 | |
| Lycoteuthis diadema * | 0.00 | 2 | | |
| Total | 242.60 | | 99.97 | |

PROJECT STATION: 828

DATE:25/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2902
start stop duration Long E 1424
TIME :07:53:31 08:23:21 30 (min) Purpose code:
LOG :1353.43 1355.02 1.58 Area code :
FDEPTH: 484 486 GearCond.code:
BDEPTH: 484 486 Validity code:
Towing dir: 355ø Wire out:1280 m Speed: 30 kn*10

Sorted: Kg Total catch: 720.63 CATCH/HOUR: 1441.26

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 1094.00 | 1108 | 75.91 | 7117 |
| Merluccius paradoxus | 112.00 | 494 | 7.77 | 7116 |
| Coelorinchus simorynchus | 106.00 | | 7.35 | |
| Genypterus capensis | 42.00 | 24 | 2.91 | 7118 |
| Lophius vomerinus | 24.00 | 4 | 1.67 | 7120 |
| Bassanago albescens | 12.32 | 50 | 0.85 | |
| Helicolenus dactylopterus | 12.00 | 28 | 0.83 | 7119 |
| Cruriraja parcomaculata | 8.00 | 8 | 0.56 | |
| Lucigadus ori | 3.72 | | 0.26 | |
| Todaropsis eblanae | 3.52 | 18 | 0.24 | 7121 |
| Lucigadus ori | 3.12 | 18 | 0.22 | |
| Todarodes angolensis - males | 2.58 | 4 | 0.18 | 7122 |
| Todarodes angolensis - females | 2.50 | 2 | 0.17 | 7123 |
| Lycoteuthis diadema * | 1.96 | 142 | 0.14 | |
| Funchalia woodwardi | 1.80 | | 0.12 | |
| Symbolophorus boops | 1.74 | 136 | 0.12 | |
| Malacocephalus laevis | 1.70 | 24 | 0.12 | |
| Selachophidium guentheri | 1.48 | 24 | 0.10 | |
| Rossia enigmatica | 1.44 | | 0.10 | |
| Photichthys argenteus | 1.00 | | 0.07 | |
| Epigonus sp. | 0.88 | 48 | 0.06 | |
| Parapagurus pilosimanus | 0.70 | | 0.05 | |
| Tripterophycis gilchristi | 0.62 | 22 | 0.04 | |
| Coelorinchus braueri | 0.48 | 78 | 0.03 | |
| Physiculus capensis | 0.42 | 28 | 0.03 | |
| Coelorinchus matamua | 0.42 | 4 | 0.03 | |
| Psychrolutes macrocephalus | 0.24 | 2 | 0.02 | |
| Bathophilus longipinnis | 0.18 | 4 | 0.01 | |
| Bathynectes sp. | 0.08 | 2 | 0.01 | |
| Stereomastis sp. | 0.06 | 14 | | |
| Diaphus sp. | 0.06 | 18 | | |
| MYCTOPHIDAE | 0.06 | | | |
| Rochinia sp. | 0.04 | | | |
| Hoplostethus mediterraneus | 0.04 | 8 | | |
| Diaphus effulgens | 0.04 | 4 | | |
| Stoloteuthis sp. | 0.02 | 6 | | |
| Electrona risso | 0.02 | 6 | | |
| Argyropelecus aculeatus * | 0.02 | 2 | | |
| Abraliopsis gilchristi | 0.00 | 2 | | |
| Total | 1441.26 | | 99.97 | |

PROJECT STATION: 827

DATE:25/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2913
start stop duration Long E 1429
TIME :05:30:35 06:01:13 31 (min) Purpose code:
LOG :1340.61 1342.18 1.55 Area code :
FDEPTH: 446 448 GearCond.code:
BDEPTH: 446 448 Validity code:
Towing dir: 345ø Wire out:1280 m Speed: 30 kn*10

Sorted: Kg Total catch: 342.93 CATCH/HOUR: 663.74

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 329.03 | 639 | 49.57 | 7107 |
| Merluccius paradoxus | 189.68 | 1214 | 28.58 | 7106 |
| Genypterus capensis | 48.00 | 15 | 7.23 | 7109 |
| Coelorinchus simorynchus | 11.61 | | 1.75 | |
| Octopus dofleini=magnifica | 10.84 | | 1.63 | |
| Bassanago albescens | 7.74 | 10 | 1.17 | |
| Lophius vomerinus | 6.39 | 2 | 0.96 | 7111 |
| Helicolenus dactylopterus | 6.19 | 29 | 0.93 | 7110 |
| Todarodes angolensis - males | 5.81 | 10 | 0.88 | 7114 |
| Lucigadus ori | 3.10 | | 0.47 | |
| Rossia enigmatica | 1.94 | | 0.29 | |
| Photichthys argenteus | 1.82 | | 0.27 | |
| Todarodes angolensis - females | 1.55 | 2 | 0.23 | 7115 |
| Coelorinchus braueri | 0.77 | 74 | 0.12 | |
| Todaropsis eblanae | 0.56 | 4 | 0.08 | 7113 |
| Bathynectes sp. | 0.45 | 15 | 0.07 | |
| Etmopterus sp. | 0.39 | 33 | 0.06 | |
| Todaropsis eblanae | 0.37 | 2 | 0.06 | 7112 |
| Epigonus sp. | 0.27 | | 0.04 | |
| Merluccius paradoxus, juvenile | 0.27 | 10 | 0.04 | 7108 |
| Lycoteuthis diadema * | 0.25 | 19 | 0.04 | |
| Tripterophycis gilchristi | 0.25 | 19 | 0.04 | |
| Malacocephalus laevis | 0.25 | | 0.04 | |
| Paracallionymus costatus | 0.21 | 31 | 0.03 | |
| Stereomastis sp. | 0.19 | 41 | 0.03 | |
| Physiculus capensis | 0.19 | 12 | 0.03 | |
| Ophichthus bennettai | 0.14 | 2 | 0.02 | |
| Psychrolutes macrocephalus | 0.12 | 8 | 0.02 | |
| Hoplostethus mediterraneus | 0.12 | 46 | 0.02 | |
| Chaunax pictus | 0.08 | 4 | 0.01 | |
| Selachophidium guentheri | 0.06 | 12 | 0.01 | |
| Funchalia woodwardi | 0.04 | | 0.01 | |
| Diaphus sp. | 0.04 | 17 | 0.01 | |
| MYCTOPHIDAE | 0.04 | 14 | 0.01 | |
| Myxine capensis | 0.04 | | 0.01 | |
| Rochinia sp. | 0.02 | | | |
| Stoloteuthis sp. | 0.02 | 10 | | |
| Nezumia sp. | 0.02 | 2 | | |
| Symbolophorus boops | 0.02 | 2 | | |
| Maurolicus muelleri | 0.02 | | | |
| Krill | 0.00 | | | |
| Electrona risso | 0.00 | 2 | | |
| Total | 628.90 | | 94.76 | |

PROJECT STATION: 829

DATE:25/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2901
start stop duration Long E 1428
TIME :10:05:08 10:30:03 25 (min) Purpose code:
LOG :1363.96 1365.23 1.26 Area code :
FDEPTH: 332 335 GearCond.code:
BDEPTH: 332 335 Validity code:
Towing dir: 350ø Wire out: 920 m Speed: 30 kn*10

Sorted: Kg Total catch: 742.09 CATCH/HOUR: 1781.02

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Epigonus sp. | 393.60 | | 22.10 | |
| Merluccius paradoxus | 355.20 | 3115 | 19.94 | 7125 |
| Merluccius capensis | 180.00 | 120 | 10.11 | 7124 |
| Zeus capensis | 177.60 | 360 | 9.97 | 7127 |
| Helicolenus dactylopterus | 153.60 | 802 | 8.62 | 7132 |
| Coelorinchus simorynchus | 103.20 | | 5.79 | |
| Merluccius paradoxus | 79.20 | 84 | 4.45 | 7126 |
| Holohalaelurus regani | 31.20 | | 1.75 | |
| Parapagurus dimorphus | 24.00 | | 1.35 | |
| Genypterus capensis | 19.20 | 19 | 1.08 | 7131 |
| Malacocephalus laevis | 19.20 | | 1.08 | |
| Todaropsis eblanae | 15.60 | 142 | 0.88 | 7134 |
| Scyliorhinus capensis | 7.20 | 7 | 0.40 | |
| Cruriraja parcomaculata | 6.00 | 7 | 0.34 | |
| Todaropsis eblanae | 5.81 | 46 | 0.33 | 7135 |
| Thyrsites atun | 5.52 | 2 | 0.31 | 7130 |
| Lophius vomerinus | 4.80 | 2 | 0.27 | 7133 |
| Cynoglossus zanzibarensis | 4.32 | 72 | 0.24 | 7128 |
| Brama brama | 3.60 | 2 | 0.20 | 7129 |
| Squalus megalops | 3.36 | 5 | 0.19 | |
| Paracallionymus costatus | 1.63 | 12 | 0.09 | |
| Todarodes angolensis - females | 1.39 | 2 | 0.08 | 7136 |
| Emmelichthys nitidus | 1.37 | 2 | 0.08 | |
| Galeus polli | 0.72 | 5 | 0.04 | |
| Rossia enigmatica | 0.55 | 36 | 0.03 | |
| Cyttus traversi | 0.46 | 2 | 0.03 | |
| Parapagurus pilosimanus | 0.10 | 5 | 0.01 | |
| Sepia hieronis | 0.10 | 2 | 0.01 | |
| MERBA02 | 0.05 | 2 | | |
| Rochinia sp. | 0.02 | 2 | | |
| Physiculus capensis | 0.02 | 2 | | |
| Total | 1781.02 | | 100.01 | |

PROJECT STATION: 830

DATE:25/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2854

start stop duration Long E 1424

TIME :12:19:15 12:49:25 30 (min) Purpose code:

LOG :1374.61 1376.21 1.59 Area code :

FDEPTH: 434 435 GearCond.code:

BDEPTH: 434 435 Validity code:

Towing dir: 350ø Wire out:1150 m Speed: 30 kn*10

Sorted: Kg Total catch: 613.73 CATCH/HOUR: 1227.46

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 358.00 | 670 | 29.17 | 7138 |
| Merluccius paradoxus | 250.00 | 1346 | 20.37 | 7137 |
| Epigonus sp. | 142.00 | | 11.57 | |
| Coelorinchus simorynchus | 106.00 | | 8.64 | |
| Helicolenus dactylopterus | 76.00 | 182 | 6.19 | 7142 |
| Genypterus capensis | 60.00 | 28 | 4.89 | 7141 |
| Zeus capensis | 48.00 | 56 | 3.91 | 7139 |
| Lophius vomerinus | 42.00 | 14 | 3.42 | 7143 |
| Brama brama | 38.00 | 26 | 3.10 | 7140 |
| Lepidopus caudatus | 34.00 | | 2.77 | |
| Cruriraja parcomaculata | 22.00 | 18 | 1.79 | |
| Scyliorhinus capensis | 14.00 | 14 | 1.14 | |
| Todarodes angolensis - females | 6.40 | 6 | 0.52 | 7147 |
| Malacocephalus laevis | 6.00 | | 0.49 | |
| Todarodes angolensis - males | 4.20 | 8 | 0.34 | 7146 |
| Parapagurus pilosimanus | 4.00 | | 0.33 | |
| Raja leopardus | 3.00 | 6 | 0.24 | |
| Lucigadus ori | 2.60 | | 0.21 | |
| Holohalaelurus regani | 2.00 | 6 | 0.16 | |
| Beryx splendens | 1.80 | 8 | 0.15 | |
| Todaropsis eblanae | 1.60 | 10 | 0.13 | 7145 |
| Bassanago albescens | 1.52 | 4 | 0.12 | |
| Todaropsis eblanae | 1.50 | 10 | 0.12 | 7144 |
| Rossia enigmatica | 0.80 | 28 | 0.07 | |
| Physiculus capensis | 0.76 | 54 | 0.06 | |
| Galeus polli | 0.38 | 4 | 0.03 | |
| Bathynectes sp. | 0.34 | 12 | 0.03 | |
| Paracallionymus costatus | 0.18 | 36 | 0.01 | |
| Psychrolutes macrocephalus | 0.08 | 6 | 0.01 | |
| Tripterophycis gilchristi | 0.06 | 4 | | |
| Symbolophorus boops | 0.06 | 4 | | |
| Rochinia sp. | 0.04 | 8 | | |
| Hoplostethus mediterraneus | 0.04 | 10 | | |
| Stereomastis sp. | 0.02 | 4 | | |
| Mursia cristimanus | 0.02 | 2 | | |
| Sepia sp. New SA | 0.02 | 4 | | |
| Abraliopsis gilchristi | 0.02 | | | |
| Diaphus effulgens | 0.02 | 2 | | |
| Lycoteuthis diadema * | 0.00 | 2 | | |
| Lampanyctodes hectoris | 0.00 | 8 | | |
| Total | 1227.46 | | 99.98 | |

PROJECT STATION: 832

DATE:26/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2832

start stop duration Long E 1424

TIME :08:44:57 09:12:52 28 (min) Purpose code:

LOG :1436.38 1437.80 1.40 Area code :

FDEPTH: 449 442 GearCond.code:

BDEPTH: 449 442 Validity code:

Towing dir: 178ø Wire out:1260 m Speed: 30 kn*10

Sorted: Kg Total catch: 260.63 CATCH/HOUR: 558.49

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 233.57 | 257 | 41.82 | 7153 |
| Merluccius paradoxus | 109.29 | 572 | 19.57 | 7152 |
| Genypterus capensis | 98.57 | 47 | 17.65 | 7154 |
| Coelorinchus simorynchus | 51.43 | | 9.21 | |
| Rochinia sp. | 11.79 | 7858 | 2.11 | |
| Cruriraja parcomaculata | 7.93 | 17 | 1.42 | |
| Merluccius capensis | 6.43 | 2 | 1.15 | 7151 |
| Todarodes angolensis - males | 5.98 | 13 | 1.07 | 7156 |
| Notacanthus sexspinis | 4.29 | | 0.77 | |
| Photichthys argenteus | 4.29 | | 0.77 | |
| Lucigadus ori | 3.64 | | 0.65 | |
| Rossia enigmatica | 2.36 | | 0.42 | |
| Hydrolagus africanus | 2.14 | 2 | 0.38 | |
| Myxine capensis | 1.97 | | 0.35 | |
| Todarodes angolensis - females | 1.59 | 2 | 0.28 | 7157 |
| Beryx splendens | 1.39 | 9 | 0.25 | |
| Lycoteuthis diadema * | 1.22 | 103 | 0.22 | |
| Sergestes sp. | 1.07 | | 0.19 | |
| Bathynectes sp. | 1.07 | | 0.19 | |
| Parapagurus pilosimanus | 1.07 | | 0.19 | |
| Tripterophycis gilchristi | 0.94 | 49 | 0.17 | |
| Epigonus sp. | 0.84 | 51 | 0.15 | |
| Nezumia sp. | 0.84 | 26 | 0.15 | |
| Coelorinchus braueri | 0.71 | 34 | 0.13 | |
| Holohalaelurus regani | 0.64 | 2 | 0.11 | |
| Symbolophorus boops | 0.62 | | 0.11 | |
| Galeus polli | 0.47 | 4 | 0.08 | |
| Malacocephalus laevis | 0.45 | 13 | 0.08 | |
| Etmopterus sp. | 0.34 | | 0.06 | |
| Stoloteuthis sp. | 0.30 | | 0.05 | |
| Ophichthus bennettai | 0.28 | 2 | 0.05 | |
| Psychrolutes macrocephalus | 0.26 | 9 | 0.05 | |
| MYCTOPHIDAE | 0.17 | | 0.03 | |
| Stereomastis sp. | 0.15 | 34 | 0.03 | |
| Lophius vomerinus | 0.13 | 9 | 0.02 | 7155 |
| Raja spinacidermis | 0.13 | | 0.02 | |
| Allocyttus verrucosus | 0.11 | 2 | 0.02 | |
| Hoplostethus mediterraneus | 0.02 | 11 | | |
| Selachophidium guentheri | 0.00 | 2 | | |
| Total | 558.49 | | 99.97 | |

PROJECT STATION: 831

DATE:26/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2834

start stop duration Long E 1420

TIME :05:38:04 06:08:51 31 (min) Purpose code:

LOG :1424.31 1426.07 1.76 Area code :

FDEPTH: 560 573 GearCond.code:

BDEPTH: 560 573 Validity code: 1

Towing dir: 12ø Wire out:1500 m Speed: 30 kn*10

Sorted: Kg Total catch: 78.63 CATCH/HOUR: 152.19

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 36.77 | 35 | 24.16 | 7148 |
| Nezumia sp. | 17.42 | | 11.45 | |
| Selachophidium guentheri | 13.55 | | 8.90 | |
| Raja springeri | 13.55 | 2 | 8.90 | |
| Coelorinchus braueri | 11.61 | | 7.63 | |
| Sergestes sp. | 9.68 | | 6.36 | |
| Hydrolagus africanus | 8.52 | | 5.60 | |
| Cruriraja parcomaculata | 7.74 | 23 | 5.09 | |
| Etmopterus sp. | 6.00 | | 3.94 | |
| Notacanthus sexspinis | 5.81 | 155 | 3.82 | |
| Photichthys argenteus | 3.87 | | 2.54 | |
| Raja leopardus | 3.87 | 6 | 2.54 | |
| Todarodes angolensis - females | 1.94 | 2 | 1.27 | 7150 |
| Bassanago albescens | 1.94 | 8 | 1.27 | |
| Neocyttus rhomboidalis | 1.90 | 12 | 1.25 | |
| Chaceon chuni | 1.74 | 4 | 1.14 | |
| Todarodes angolensis - males | 1.74 | 2 | 1.14 | 7149 |
| Psychrolutes macrocephalus | 1.16 | 27 | 0.76 | |
| Lycoteuthis diadema * | 0.97 | 79 | 0.64 | |
| Neoscopelus macrolepidotus | 0.54 | 33 | 0.35 | |
| Malacocephalus laevis | 0.43 | 14 | 0.28 | |
| Opisthoteuthis sp. | 0.33 | 2 | 0.22 | |
| Beryx splendens | 0.27 | 2 | 0.18 | |
| Caelorinchus sp. | 0.19 | | 0.12 | |
| Lucigadus ori | 0.15 | 12 | 0.10 | |
| Allocyttus verrucosus | 0.12 | | 0.08 | |
| Coelorinchus matamua | 0.12 | 2 | 0.08 | |
| Tripterophycis gilchristi | 0.12 | 4 | 0.08 | |
| Scopelosaurus meadi | 0.06 | | 0.04 | |
| MYCTOPHIDAE | 0.04 | 2 | 0.03 | |
| Argentina euchus | 0.04 | 2 | 0.03 | |
| Total | 152.19 | | 99.99 | |

PROJECT STATION: 833

DATE:27/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2810

start stop duration Long E 1428

TIME :05:31:22 06:01:09 30 (min) Purpose code:

LOG :1500.76 1502.27 1.51 Area code :

FDEPTH: 560 561 GearCond.code:

BDEPTH: 560 561 Validity code:

Towing dir: 40ø Wire out:1500 m Speed: 30 kn*10

Sorted: Kg Total catch: 210.03 CATCH/HOUR: 420.06

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Coelorinchus braueri | 158.00 | | 37.61 | |
| Nezumia sp. | 122.00 | | 29.04 | |
| Merluccius paradoxus | 32.00 | 22 | 7.62 | 7158 |
| Raja leopardus | 26.02 | 34 | 6.19 | |
| Sergestes sp. | 16.00 | | 3.81 | |
| Lophius vomerinus | 9.04 | 2 | 2.15 | 7160 |
| Notacanthus sexspinis | 8.00 | 88 | 1.90 | |
| Psychrolutes macrocephalus | 6.80 | 74 | 1.62 | |
| Selachophidium guentheri | 5.00 | 64 | 1.19 | |
| Lophius vomerinus | 4.96 | 4 | 1.18 | 7159 |
| Photichthys argenteus | 4.00 | | 0.95 | |
| Etmopterus sp. | 3.40 | 54 | 0.81 | |
| Allocyttus verrucosus | 2.62 | | 0.62 | |
| Lithodes sp. | 2.42 | 16 | 0.58 | |
| Rochinia sp. | 2.00 | | 0.48 | |
| Cruriraja parcomaculata | 2.00 | 6 | 0.48 | |
| Myxine capensis | 2.00 | | 0.48 | |
| Synaphobranchus kaupii | 1.82 | | 0.43 | |
| Todarodes angolensis - females | 1.80 | | 0.43 | 7161 |
| Parapagurus pilosimanus | 1.44 | 70 | 0.34 | |
| Hydrolagus africanus | 1.30 | 2 | 0.31 | |
| Neocyttus rhomboidalis | 1.02 | | 0.24 | |
| Sergia sp. | 1.00 | | 0.24 | |
| Hoplostethus atlanticus | 1.00 | 4 | 0.24 | |
| Coelorinchus matamua | 0.90 | | 0.21 | |
| Antimora rostrata | 0.84 | | 0.20 | |
| Lycoteuthis diadema * | 0.56 | 42 | 0.13 | |
| Lycodes sp. | 0.40 | 2 | 0.10 | |
| Gonostoma elongatum | 0.38 | | 0.09 | |
| Careproctus griseldea | 0.32 | | 0.08 | |
| Bathophilus longipinnis | 0.20 | 6 | 0.05 | |
| Octopoteuthis sp. | 0.18 | 2 | 0.04 | |
| Xenodermichthys copei | 0.18 | | 0.04 | |
| Bathyuroconger vicinus | 0.14 | 2 | 0.03 | |
| Lucigadus ori | 0.08 | | 0.02 | |
| MYCTOPHIDAE | 0.08 | | 0.02 | |
| Bathypolypus valdiviae | 0.04 | 2 | 0.01 | |
| Nemichthys curvirostris | 0.04 | 2 | 0.01 | |
| Rossia enigmatica | 0.02 | 2 | | |
| Lepidion capensis | 0.02 | | | |
| Scopelosaurus herwigi | 0.02 | 2 | | |
| Lestidiops sp. | 0.02 | | | |
| Stereomastis sp. | 0.00 | | | |
| Total | 420.06 | | 99.97 | |

PROJECT STATION: 834

DATE:27/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2809

start stop duration Long E 1431

TIME :07:41:29 08:11:27 30 (min) Purpose code:

LOG :1507.98 1509.46 1.49 Area code :

FDEPTH: 467 469 GearCond.code:

BDEPTH: 467 469 Validity code:

Towing dir: 203ø Wire out:1250 m Speed: 30 kn*10

Sorted: Kg Total catch: 150.37 CATCH/HOUR: 300.74

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Coelorinchus simorynchus | 90.00 | | 29.93 | |
| Merluccius paradoxus | 38.00 | 30 | 12.64 | 7163 |
| Nezumia sp. | 30.00 | | 9.98 | |
| Merluccius paradoxus | 28.00 | 182 | 9.31 | 7162 |
| Genypterus capensis | 23.00 | 12 | 7.65 | 7164 |
| Krill | 16.00 | | 5.32 | |
| Parapagurus pilosimanus | 16.00 | | 5.32 | |
| Etmopterus sp. | 16.00 | | 5.32 | |
| Sergestes sp. | 8.00 | | 2.66 | |
| Notacanthus sexspinis | 6.00 | | 2.00 | |
| Raja leopardus | 6.00 | 10 | 2.00 | |
| Stereomastis sp. | 3.20 | | 1.06 | |
| Photichthys argenteus | 2.90 | 138 | 0.96 | |
| Todarodes angolensis - males | 2.80 | 6 | 0.93 | 7166 |
| Todarodes angolensis - females | 2.00 | 2 | 0.67 | 7167 |
| Psychrolutes macrocephalus | 2.00 | 20 | 0.67 | |
| Coelorinchus braueri | 2.00 | 54 | 0.67 | |
| Lucigadus ori | 1.70 | | 0.57 | |
| Myxine capensis | 1.60 | | 0.53 | |
| Bassanago albescens | 0.92 | 2 | 0.31 | |
| Bathophilus longipinnis | 0.78 | 14 | 0.26 | |
| Malacocephalus laevis | 0.70 | | 0.23 | |
| Bathophilus longipinnis | 0.60 | 14 | 0.20 | |
| Lycoteuthis diadema * | 0.48 | 42 | 0.16 | |
| Galeus polli | 0.48 | 2 | 0.16 | |
| Helicolenus dactylopterus | 0.44 | 2 | 0.15 | 7165 |
| Tripterophycis gilchristi | 0.38 | 12 | 0.13 | |
| Hoplostethus mediterraneus | 0.16 | 42 | 0.05 | |
| Allocyttus verrucosus | 0.16 | 4 | 0.05 | |
| Epigonus sp. | 0.12 | 4 | 0.04 | |
| Aristaeomorpha foliacea | 0.06 | 2 | 0.02 | |
| Gonostoma elongatum | 0.06 | 2 | 0.02 | |
| Rochinia sp. | 0.04 | 4 | 0.01 | |
| Rossia enigmatica | 0.02 | 2 | 0.01 | |
| Champsodon capensis | 0.02 | 2 | 0.01 | |
| Electrona risso | 0.02 | 4 | 0.01 | |
| Symbolophorus boops | 0.02 | 2 | 0.01 | |
| Diaphus sp. | 0.02 | 4 | 0.01 | |
| MYCTOPHIDAE | 0.02 | | 0.01 | |
| Xenodermichthys copei | 0.02 | 2 | 0.01 | |
| Hydrolagus africanus | 0.02 | 2 | 0.01 | |
| Total | 300.74 | | 100.06 | |

PROJECT STATION: 836

DATE:27/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2817

start stop duration Long E 1427

TIME :12:23:47 12:54:13 30 (min) Purpose code:

LOG :1532.26 1533.85 1.57 Area code :

FDEPTH: 476 474 GearCond.code:

BDEPTH: 476 474 Validity code:

Towing dir: 20ø Wire out:1200 m Speed: 30 kn*10

Sorted: Kg Total catch: 133.56 CATCH/HOUR: 267.12

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Genypterus capensis | 94.06 | 42 | 35.21 | 7180 |
| Merluccius paradoxus | 32.80 | 38 | 12.28 | 7178 |
| Coelorinchus simorynchus | 30.00 | | 11.23 | |
| Cruriraja parcomaculata | 26.00 | 20 | 9.73 | |
| Etmopterus sp. | 22.40 | | 8.39 | |
| Notacanthus sexspinis | 14.72 | | 5.51 | |
| Merluccius paradoxus | 10.00 | 54 | 3.74 | 7177 |
| Parapagurus pilosimanus | 5.00 | | 1.87 | |
| Hydrolagus africanus | 4.80 | 4 | 1.80 | |
| Todarodes angolensis - males | 4.06 | 6 | 1.52 | 7182 |
| Raja leopardus | 4.04 | 4 | 1.51 | |
| Myxine capensis | 3.80 | | 1.42 | |
| Funchalia woodwardi | 2.60 | | 0.97 | |
| Genypterus capensis | 1.94 | 4 | 0.73 | 7179 |
| Todarodes angolensis - females | 1.72 | 2 | 0.64 | 7183 |
| Psychrolutes macrocephalus | 1.60 | 16 | 0.60 | |
| Nezumia sp. | 1.40 | 72 | 0.52 | |
| Bassanago albescens | 1.12 | 4 | 0.42 | |
| Lucigadus ori | 1.00 | 78 | 0.37 | |
| Epigonus sp. | 0.70 | 34 | 0.26 | |
| Photichthys argenteus | 0.60 | 48 | 0.22 | |
| Bathynectes sp. | 0.50 | 58 | 0.19 | |
| Stoloteuthis sp. | 0.38 | | 0.14 | |
| Selachophidium guentheri | 0.30 | 10 | 0.11 | |
| Malacocephalus laevis | 0.28 | 8 | 0.10 | |
| Lycoteuthis diadema * | 0.26 | 22 | 0.10 | |
| Helicolenus dactylopterus | 0.24 | 2 | 0.09 | 7181 |
| Tripterophycis gilchristi | 0.20 | 14 | 0.07 | |
| Plesiopenaeus edwardsianus | 0.10 | 2 | 0.04 | |
| Stereomastis sp. | 0.10 | 14 | 0.04 | |
| Chaceon chuni | 0.10 | 2 | 0.04 | |
| Conger wilsoni | 0.08 | 2 | 0.03 | |
| Coelorinchus braueri | 0.06 | 14 | 0.02 | |
| Symbolophorus boops | 0.06 | 4 | 0.02 | |
| Squilla sp. | 0.04 | 2 | 0.01 | |
| Hoplostethus mediterraneus | 0.02 | 8 | 0.01 | |
| MYCTOPHIDAE | 0.02 | | 0.01 | |
| Gonostoma elongatum | 0.02 | | 0.01 | |
| Rossia enigmatica | 0.00 | 2 | | |
| Total | 267.12 | | 99.97 | |

PROJECT STATION: 835

DATE:27/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2809

start stop duration Long E 1433

TIME :09:27:22 09:57:15 30 (min) Purpose code:

LOG :1514.33 1515.82 1.48 Area code :

FDEPTH: 381 386 GearCond.code:

BDEPTH: 381 386 Validity code:

Towing dir: 25ø Wire out:1060 m Speed: 30 kn*10

Sorted: Kg Total catch: 451.24 CATCH/HOUR: 902.48

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 212.00 | 1576 | 23.49 | 7169 |
| Coelorinchus simorynchus | 184.00 | | 20.39 | |
| Genypterus capensis | 147.98 | 84 | 16.40 | 7173 |
| Merluccius paradoxus | 98.00 | 124 | 10.86 | 7170 |
| Krill | 84.00 | | 9.31 | |
| Merluccius capensis | 56.00 | 28 | 6.21 | 7168 |
| Lophius vomerinus | 32.00 | 12 | 3.55 | 7175 |
| Genypterus capensis | 28.02 | 36 | 3.10 | 7172 |
| Scyliorhinus capensis | 14.00 | 18 | 1.55 | |
| Helicolenus dactylopterus | 10.60 | 32 | 1.17 | 7174 |
| Etmopterus sp. | 10.00 | | 1.11 | |
| Holohalaelurus regani | 7.40 | 16 | 0.82 | |
| Bathynectes sp. | 5.00 | | 0.55 | |
| Malacocephalus laevis | 3.00 | | 0.33 | |
| Photichthys argenteus | 2.40 | | 0.27 | |
| Todarodes angolensis - males | 2.00 | 4 | 0.22 | 7176 |
| Epigonus sp. | 1.60 | | 0.18 | |
| Brama brama | 1.20 | 2 | 0.13 | 7171 |
| Nezumia sp. | 0.74 | 44 | 0.08 | |
| Lucigadus ori | 0.58 | | 0.06 | |
| Notacanthus sexspinis | 0.36 | 16 | 0.04 | |
| Galeus polli | 0.36 | 2 | 0.04 | |
| Lycoteuthis diadema * | 0.32 | 24 | 0.04 | |
| Tripterophycis gilchristi | 0.28 | 16 | 0.03 | |
| Parapagurus pilosimanus | 0.12 | 6 | 0.01 | |
| Rochinia sp. | 0.08 | 2 | 0.01 | |
| Physiculus capensis | 0.08 | 10 | 0.01 | |
| Symbolophorus boops | 0.08 | 6 | 0.01 | |
| Bathophilus longipinnis | 0.08 | 4 | 0.01 | |
| Stereomastis sp. | 0.04 | 12 | | |
| Hoplostethus mediterraneus | 0.04 | 8 | | |
| Cyttus traversi | 0.04 | 2 | | |
| Squilla sp. | 0.02 | 4 | | |
| Electrona risso | 0.02 | 4 | | |
| Lampanyctodes hectoris | 0.02 | 10 | | |
| Diaphus effulgens | 0.02 | 4 | | |
| Diaphus sp. | 0.00 | 2 | | |
| Total | 902.48 | | 99.98 | |

PROJECT STATION: 837

DATE:27/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2825

start stop duration Long E 1426

TIME :14:42:40 15:12:32 30 (min) Purpose code:

LOG :1544.06 1545.53 1.46 Area code :

FDEPTH: 419 419 GearCond.code:

BDEPTH: 419 419 Validity code:

Towing dir: 180ø Wire out:1100 m Speed: 30 kn*10

Sorted: Kg Total catch: 347.35 CATCH/HOUR: 694.70

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Genypterus capensis | 162.00 | 94 | 23.32 | 7187 |
| Merluccius paradoxus | 158.00 | 808 | 22.74 | 7185 |
| Coelorinchus simorynchus | 152.00 | | 21.88 | |
| Merluccius paradoxus | 130.00 | 174 | 18.71 | 7186 |
| Merluccius capensis | 18.00 | 8 | 2.59 | 7184 |
| Lucigadus ori | 17.00 | | 2.45 | |
| Helicolenus dactylopterus | 13.00 | 42 | 1.87 | 7188 |
| Krill | 10.00 | | 1.44 | |
| Todarodes angolensis - males | 4.70 | 8 | 0.68 | 7189 |
| Bathynectes sp. | 4.00 | | 0.58 | |
| Todarodes angolensis - females | 3.70 | 4 | 0.53 | 7190 |
| Notacanthus sexspinis | 3.40 | 48 | 0.49 | |
| Scyliorhinus capensis | 3.30 | 4 | 0.48 | |
| Tripterophycis gilchristi | 2.70 | | 0.39 | |
| Holohalaelurus regani | 2.60 | 8 | 0.37 | |
| Raja leopardus | 2.34 | 6 | 0.34 | |
| Stoloteuthis sp. | 1.16 | | 0.17 | |
| Photichthys argenteus | 1.04 | 66 | 0.15 | |
| Cruriraja parcomaculata | 1.00 | 2 | 0.14 | |
| Galeus polli | 0.80 | 6 | 0.12 | |
| Rossia enigmatica | 0.78 | | 0.11 | |
| Malacocephalus laevis | 0.70 | 14 | 0.10 | |
| Lycoteuthis diadema * | 0.40 | 36 | 0.06 | |
| Myxine capensis | 0.40 | 4 | 0.06 | |
| Etmopterus brachyurus | 0.32 | 34 | 0.05 | |
| Symbolophorus boops | 0.30 | 22 | 0.04 | |
| Epigonus sp. | 0.28 | | 0.04 | |
| Conger wilsoni | 0.24 | 2 | 0.03 | |
| Nezumia sp. | 0.16 | 8 | 0.02 | |
| Rochinia sp. | 0.08 | 4 | 0.01 | |
| CARIDEA | 0.06 | 16 | 0.01 | |
| Stereomastis sp. | 0.06 | 12 | 0.01 | |
| Scopelosaurus meadi | 0.06 | 2 | 0.01 | |
| Diaphus sp. | 0.06 | 58 | 0.01 | |
| Hoplostethus mediterraneus | 0.02 | 6 | | |
| MYCTOPHIDAE | 0.02 | | | |
| Myctophum sp. | 0.02 | 2 | | |
| Nemichthys curvirostris | 0.00 | 24 | | |
| Paracallionymus costatus | 0.00 | 2 | | |
| Coelorinchus matamua | 0.00 | 2 | | |
| Total | 694.70 | | 100.00 | |

PROJECT STATION: 838

DATE:28/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2841
start stop duration Long E 1422
TIME :06:06:27 06:36:11 30 (min) Purpose code:
LOG :1592.71 1594.26 1.54 Area code :
FDEPTH: 451 448 GearCond.code:
BDEPTH: 451 448 Validity code:
Towing dir: 360ø Wire out:1210 m Speed: 30 kn*10

Sorted: Kg Total catch: 234.95 CATCH/HOUR: 469.90

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 218.00 | 244 | 46.39 | 7192 |
| Merluccius paradoxus | 136.00 | 808 | 28.94 | 7191 |
| Genypterus capensis | 32.00 | 16 | 6.81 | 7193 |
| Coelorinchus simorynchus | 25.00 | | 5.32 | |
| Todarodes angolensis - females | 10.00 | 10 | 2.13 | 7198 |
| Epigonus sp. | 8.00 | | 1.70 | |
| Krill | 7.20 | | 1.53 | |
| Bassanago albescens | 3.50 | 14 | 0.74 | |
| Helicolenus dactylopterus | 3.20 | 10 | 0.68 | 7194 |
| Lophius vomerinus | 3.10 | 16 | 0.66 | 7195 |
| Todarodes angolensis - males | 2.70 | 6 | 0.57 | 7197 |
| Raja leopardus | 2.64 | 4 | 0.56 | |
| Malacocephalus laevis | 2.40 | 46 | 0.51 | |
| Bathynectes sp. | 2.00 | | 0.43 | |
| Lucigadus ori | 2.00 | | 0.43 | |
| Notacanthus sexspinis | 1.60 | 28 | 0.34 | |
| Rossia enigmatica | 1.40 | | 0.30 | |
| Photichthys argenteus | 1.30 | 68 | 0.28 | |
| Octopus vulgaris | 1.20 | 2 | 0.26 | |
| Lycoteuthis diadema * | 1.00 | 94 | 0.21 | |
| Psychrolutes macrocephalus | 1.00 | 18 | 0.21 | |
| Beryx splendens | 1.00 | 4 | 0.21 | |
| Coelorinchus braueri | 0.90 | | 0.19 | |
| Selachophidium guentheri | 0.40 | 16 | 0.09 | |
| Etmopterus brachyurus | 0.40 | 18 | 0.09 | |
| Symbolophorus boops | 0.38 | 28 | 0.08 | |
| Todaropsis eblanae | 0.28 | 2 | 0.06 | 7196 |
| Parapagurus pilosimanus | 0.20 | 18 | 0.04 | |
| Tripterophycis gilchristi | 0.20 | 20 | 0.04 | |
| Nezumia sp. | 0.18 | 10 | 0.04 | |
| Stoloteuthis sp. | 0.14 | | 0.03 | |
| MYCTOPHIDAE | 0.14 | | 0.03 | |
| Myxine capensis | 0.14 | 2 | 0.03 | |
| Stereomastis sp. | 0.10 | 28 | 0.02 | |
| Physiculus capensis | 0.10 | 6 | 0.02 | |
| Rochinia sp. | 0.08 | 10 | 0.02 | |
| Mursia cristimanus | 0.02 | 6 | | |
| Hoplostethus mediterraneus | 0.00 | 6 | | |
| Total | 469.90 | | 99.99 | |

PROJECT STATION: 839

DATE:28/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2833
start stop duration Long E 1425
TIME :08:02:44 08:32:50 30 (min) Purpose code:
LOG :1602.00 1603.53 1.51 Area code :
FDEPTH: 375 384 GearCond.code:
BDEPTH: 375 384 Validity code:
Towing dir: 10ø Wire out:1050 m Speed: kn*10

Sorted: Kg Total catch: 417.44 CATCH/HOUR: 834.88

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Coelorinchus simorynchus | 274.00 | | 32.82 | |
| Helicolenus dactylopterus | 170.00 | 626 | 20.36 | 7202 |
| Merluccius paradoxus | 120.00 | 770 | 14.37 | 7199 |
| Genypterus capensis | 84.00 | 50 | 10.06 | 7201 |
| Merluccius paradoxus | 50.00 | 76 | 5.99 | 7200 |
| Scyliorhinus capensis | 40.00 | 46 | 4.79 | |
| Epigonus sp. | 22.00 | | 2.64 | |
| Octopus dofleini=magnifica | 10.60 | 6 | 1.27 | |
| Holohalaelurus regani | 10.00 | 26 | 1.20 | |
| Raja wallacei | 8.00 | 2 | 0.96 | |
| Galeus polli | 7.70 | 52 | 0.92 | |
| Lucigadus ori | 7.00 | | 0.84 | |
| Lophius vomerinus | 5.98 | 2 | 0.72 | 7204 |
| Rossia enigmatica | 3.20 | | 0.38 | |
| Bassanago albescens | 2.90 | 4 | 0.35 | |
| Bathynectes sp. | 2.80 | | 0.34 | |
| Squalus megalops | 2.40 | 2 | 0.29 | |
| Todarodes angolensis - males | 2.26 | 4 | 0.27 | 7207 |
| Tripterophycis gilchristi | 2.20 | | 0.26 | |
| Todarodes angolensis - females | 2.16 | 2 | 0.26 | 7208 |
| Lycoteuthis diadema * | 2.00 | 158 | 0.24 | |
| Todaropsis eblanae | 0.84 | 4 | 0.10 | 7206 |
| Funchalia woodwardi | 0.80 | | 0.10 | |
| Parapagurus pilosimanus | 0.80 | | 0.10 | |
| Beryx splendens | 0.80 | 4 | 0.10 | |
| Malacocephalus laevis | 0.50 | 16 | 0.06 | |
| Paracallionymus costatus | 0.42 | 72 | 0.05 | |
| Photichthys argenteus | 0.28 | 18 | 0.03 | |
| Rochinia sp. | 0.20 | 54 | 0.02 | |
| Sepia hieronis | 0.20 | 4 | 0.02 | |
| Todaropsis eblanae | 0.20 | 2 | 0.02 | 7205 |
| Stereomastis sp. | 0.14 | | 0.02 | |
| Lophius vomerinus | 0.10 | 8 | 0.01 | 7203 |
| Hoplostethus mediterraneus | 0.08 | 20 | 0.01 | |
| Symbolophorus boops | 0.08 | 6 | 0.01 | |
| MYCTOPHIDAE | 0.08 | | 0.01 | |
| Lestidiops sp. | 0.04 | 2 | | |
| Diaphus effulgens | 0.04 | 4 | | |
| Sepia sp. New SA | 0.02 | 8 | | |
| Argentina euchus | 0.02 | 2 | | |
| Raja leopardus | 0.02 | 2 | | |
| Etmopterus sp. | 0.02 | 4 | | |
| Stoloteuthis sp. | 0.00 | 6 | | |
| Total | 834.88 | | 99.99 | |

PROJECT STATION: 840

DATE:28/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2827
start stop duration Long E 1436
TIME :10:16:56 10:44:24 27 (min) Purpose code:
LOG :1614.82 1616.24 1.40 Area code :
FDEPTH: 170 171 GearCond.code:
BDEPTH: 170 171 Validity code:
Towing dir: 70ø Wire out: 500 m Speed: 30 kn*10

Sorted: Kg Total catch: 1128.03 CATCH/HOUR: 2506.73

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Etrumeus whiteheadi | 1026.67 | | 40.96 | |
| Merluccius capensis | 433.33 | 364 | 17.29 | 7209 |
| Emmelichthys nitidus | 268.89 | | 10.73 | |
| Lepidopus caudatus | 251.11 | | 10.02 | |
| Chelidonichthys capensis | 97.78 | 193 | 3.90 | 7217 |
| Zeus capensis | 86.67 | 473 | 3.46 | 7210 |
| Thyrsites atun | 74.76 | 76 | 2.98 | 7213 |
| Squalus megalops | 70.00 | | 2.79 | |
| Trachurus trachurus | 48.89 | 293 | 1.95 | 7211 |
| Thyrsites atun | 43.02 | 20 | 1.72 | 7214 |
| Callorhinchus capensis | 31.11 | 20 | 1.24 | |
| Holohalaelurus regani | 20.22 | | 0.81 | |
| Polyprion americanus | 13.33 | 4 | 0.53 | |
| Chelidonichthys queketti | 12.78 | 80 | 0.51 | 7218 |
| Scyliorhinus capensis | 8.40 | | 0.34 | |
| Congiopodus spinifer | 5.13 | 13 | 0.20 | |
| Todaropsis eblanae | 4.91 | 84 | 0.20 | 7219 |
| Scomber japonicus | 4.44 | 2 | 0.18 | 7212 |
| Genypterus capensis | 1.96 | 11 | 0.08 | 7215 |
| Sepia australis | 1.73 | | 0.07 | |
| Helicolenus dactylopterus | 1.60 | 109 | 0.06 | 7216 |
| Total | 2506.73 | | 100.02 | |

PROJECT STATION: 841

DATE:28/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2820
start stop duration Long E 1437
TIME :12:12:47 12:42:44 30 (min) Purpose code:
LOG :1625.45 1627.00 1.54 Area code :
FDEPTH: 177 173 GearCond.code:
BDEPTH: 177 173 Validity code:
Towing dir: 170ø Wire out: 500 m Speed: 30 kn*10

Sorted: Kg Total catch: 466.03 CATCH/HOUR: 932.06

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Squalus megalops | 340.00 | | 36.48 | |
| Etrumeus whiteheadi | 280.00 | | 30.04 | |
| Chelidonichthys capensis | 94.00 | 160 | 10.09 | 7227 |
| Merluccius capensis | 60.00 | 82 | 6.44 | 7220 |
| Chelidonichthys queketti | 36.00 | 222 | 3.86 | 7228 |
| Emmelichthys nitidus | 32.00 | | 3.43 | |
| Trachurus trachurus | 28.00 | 196 | 3.00 | 7223 |
| Zeus capensis | 17.00 | 170 | 1.82 | 7221 |
| Holohalaelurus regani | 9.00 | 30 | 0.97 | |
| Thyrsites atun | 8.00 | 8 | 0.86 | 7224 |
| Congiopodus spinifer | 7.00 | 32 | 0.75 | |
| Sepia australis | 4.00 | | 0.43 | |
| Lophius vomerinus | 4.00 | 2 | 0.43 | 7229 |
| Lepidopus caudatus | 3.00 | 4 | 0.32 | |
| Callorhinchus capensis | 3.00 | 2 | 0.32 | |
| Genypterus capensis | 2.80 | 6 | 0.30 | 7225 |
| Todaropsis eblanae | 1.62 | 30 | 0.17 | 7230 |
| Todaropsis eblanae | 1.54 | 20 | 0.17 | 7231 |
| Cynoglossus zanzibarensis | 0.70 | 4 | 0.08 | 7222 |
| Helicolenus dactylopterus | 0.26 | 34 | 0.03 | 7226 |
| Sepia hieronis | 0.12 | | 0.01 | |
| Paracallionymus costatus | 0.02 | 4 | | |
| Rochinia sp. | 0.00 | | | |
| Arnoglossus capensis | 0.00 | | | |
| Total | 932.06 | | 100.00 | |

PROJECT STATION: 842

DATE:28/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2817
start stop duration Long E 1443
TIME :14:01:00 14:31:15 30 (min) Purpose code:
LOG :1635.20 1636.78 1.57 Area code :
FDEPTH: 208 211 GearCond.code:
BDEPTH: 208 211 Validity code:
Towing dir: 350ø Wire out: 580 m Speed: 30 kn*10

Sorted: Kg Total catch: 450.68 CATCH/HOUR: 901.36

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 220.00 | 4304 | 24.41 | 7234 |
| Trachurus trachurus | 184.00 | 1146 | 20.41 | 7239 |
| Merluccius capensis | 140.00 | 146 | 15.53 | 7233 |
| Thyrsites atun | 56.00 | 38 | 6.21 | 7240 |
| Sepia australis | 50.00 | | 5.55 | |
| Callorhinchus capensis | 32.00 | 18 | 3.55 | |
| Squalus megalops | 28.00 | 74 | 3.11 | |
| Holohalaelurus regani | 26.00 | | 2.88 | |
| Chelidonichthys queketti | 25.00 | 124 | 2.77 | 7244 |
| Etrumeus whiteheadi | 19.00 | | 2.11 | |
| Merluccius paradoxus, juvenile | 18.18 | 3202 | 2.02 | 7236 |
| Lophius vomerinus | 15.00 | 20 | 1.66 | 7245 |
| Chelidonichthys capensis | 12.00 | 24 | 1.33 | 7243 |
| Merluccius capensis | 12.00 | 48 | 1.33 | 7232 |
| Coelorinchus simorynchus | 10.00 | | 1.11 | |
| Merluccius paradoxus | 8.80 | 20 | 0.98 | 7235 |
| Zeus capensis | 7.30 | 122 | 0.81 | 7237 |
| Todaropsis eblanae | 4.72 | 60 | 0.52 | 7248 |
| Helicolenus dactylopterus | 4.60 | 494 | 0.51 | 7242 |
| Mustelus palumbes | 4.50 | 4 | 0.50 | |
| Paracallionymus costatus | 4.00 | | 0.44 | |
| Cynoglossus zanzibarensis | 4.00 | 40 | 0.44 | 7238 |
| Raja straeleni | 2.60 | 4 | 0.29 | |
| Congiopodus torvus | 2.00 | 2 | 0.22 | |
| Lepidopus caudatus | 2.00 | | 0.22 | |
| Genypterus capensis | 1.80 | 12 | 0.20 | 7241 |
| Todarodes angolensis - females | 1.50 | 2 | 0.17 | 7250 |
| Todarodes angolensis - males | 1.40 | 2 | 0.16 | 7249 |
| Maurolicus muelleri | 1.00 | | 0.11 | |
| Todaropsis eblanae | 0.96 | 18 | 0.11 | 7247 |
| Sepia hieronis | 0.82 | 20 | 0.09 | |
| Todaropsis eblanae | 0.80 | 48 | 0.09 | 7246 |
| Congiopodus spinifer | 0.80 | 6 | 0.09 | |
| Bathynectes sp. | 0.28 | | 0.03 | |
| Lolliguncula mercatoris | 0.10 | | 0.01 | |
| Exodromidia sp. | 0.04 | 4 | | |
| Mursia cristimanus | 0.02 | 2 | | |
| Parapagurus dimorphus | 0.02 | 4 | | |
| Champsodon capensis | 0.02 | 2 | | |
| Arnoglossus capensis | 0.02 | 4 | | |
| Physiculus capensis | 0.02 | 2 | | |
| Chlorophthalmus agassizi | 0.02 | 2 | | |
| Symbolophorus boops | 0.02 | 2 | | |
| MYCTOPHIDAE | 0.02 | | | |
| Rochinia sp. | 0.00 | 2 | | |
| Total | 901.36 | | 99.97 | |

PROJECT STATION: 843

DATE:28/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2814

start stop duration Long E 1455

TIME :15:52:38 16:22:13 30 (min) Purpose code:

LOG :1648.36 1649.99 1.61 Area code :

FDEPTH: 191 189 GearCond.code:

BDEPTH: 191 189 Validity code:

Towing dir: 30ø Wire out: 540 m Speed: 31 kn*10

Sorted: Kg Total catch: 722.10 CATCH/HOUR: 1444.20

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 422.00 | 4456 | 29.22 | 7251 |
| Etrumeus whiteheadi | 276.80 | | 19.17 | |
| Merluccius paradoxus | 268.00 | 7896 | 18.56 | 7253 |
| Sepia australis | 102.48 | | 7.10 | |
| Merluccius capensis | 89.00 | 120 | 6.16 | 7252 |
| Merluccius paradoxus, juvenile | 82.40 | 6426 | 5.71 | 7254 |
| Chelidonichthys capensis | 56.00 | 154 | 3.88 | 7261 |
| Lophius vomerinus | 34.00 | 42 | 2.35 | 7263 |
| Thyrsites atun | 18.00 | 10 | 1.25 | 7258 |
| Holohalaelurus regani | 15.14 | 38 | 1.05 | |
| Raja straeleni | 10.70 | 6 | 0.74 | |
| Lepidopus caudatus | 10.34 | | 0.72 | |
| Trachurus trachurus | 10.22 | 76 | 0.71 | 7257 |
| Callorhinchus capensis | 10.00 | 4 | 0.69 | |
| Paracallionymus costatus | 8.04 | | 0.56 | |
| Todaropsis eblanae | 7.12 | 210 | 0.49 | 7264 |
| Zeus capensis | 4.76 | 190 | 0.33 | 7255 |
| Congiopodus spinifer | 4.62 | 20 | 0.32 | |
| Genypterus capensis | 4.60 | 18 | 0.32 | 7259 |
| Coelorinchus simorynchus | 3.20 | 58 | 0.22 | |
| Cynoglossus zanzibarensis | 2.92 | 134 | 0.20 | 7256 |
| Macropipus sp. | 1.38 | 38 | 0.10 | |
| Chelidonichthys queketti | 1.20 | 8 | 0.08 | 7262 |
| Helicolenus dactylopterus | 0.62 | 114 | 0.04 | 7260 |
| Squilla sp. | 0.48 | 38 | 0.03 | |
| Lolliguncula mercatoris | 0.18 | 76 | 0.01 | |
| Total | 1444.20 | | 100.01 | |

PROJECT STATION: 844

DATE:29/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2746

start stop duration Long E 1520

TIME :05:27:03 05:57:11 30 (min) Purpose code:

LOG :1760.07 1761.59 1.51 Area code :

FDEPTH: 132 131 GearCond.code:

BDEPTH: 132 131 Validity code:

Towing dir: 156ø Wire out: 390 m Speed: 30 kn*10

Sorted: Kg Total catch: 193.82 CATCH/HOUR: 387.64

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 148.00 | 2306 | 38.18 | 7265 |
| Chelidonichthys capensis | 102.00 | 408 | 26.31 | 7272 |
| Thyrsites atun | 65.02 | 16 | 16.77 | 7270 |
| Etrumeus whiteheadi | 22.00 | | 5.68 | |
| Callorhinchus capensis | 18.00 | 12 | 4.64 | |
| Sepia australis | 12.00 | | 3.10 | |
| Merluccius capensis | 5.40 | 12 | 1.39 | 7266 |
| Raja straeleni | 3.40 | 2 | 0.88 | |
| Austroglossus microlepis | 2.40 | 8 | 0.62 | 7267 |
| Genypterus capensis | 2.00 | 38 | 0.52 | 7271 |
| Thyrsites atun | 1.98 | 10 | 0.51 | 7269 |
| Macropipus sp. | 1.66 | | 0.43 | |
| Lolliguncula mercatoris | 1.24 | | 0.32 | |
| Todaropsis eblanae | 0.70 | 20 | 0.18 | 7273 |
| Trachurus trachurus | 0.70 | 4 | 0.18 | 7268 |
| Todaropsis eblanae | 0.50 | 16 | 0.13 | 7274 |
| Squilla sp. | 0.24 | 52 | 0.06 | |
| Sufflogobius bibarbatus | 0.14 | 26 | 0.04 | |
| Exodromidia sp. | 0.12 | 8 | 0.03 | |
| Lepidopus caudatus | 0.10 | 2 | 0.03 | |
| Paracallionymus costatus | 0.04 | 8 | 0.01 | |
| Total | 387.64 | | 100.01 | |

PROJECT STATION: 845

DATE:29/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2753

start stop duration Long E 1506

TIME :07:50:31 08:20:14 30 (min) Purpose code:

LOG :1776.88 1778.40 1.51 Area code :

FDEPTH: 167 168 GearCond.code:

BDEPTH: 167 168 Validity code:

Towing dir: 192ø Wire out: 500 m Speed: 30 kn*10

Sorted: Kg Total catch: 514.53 CATCH/HOUR: 1029.06

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 520.80 | 5874 | 50.61 | 7275 |
| Chelidonichthys capensis | 170.00 | 466 | 16.52 | 7288 |
| Merluccius capensis | 132.44 | 250 | 12.87 | 7276 |
| Etrumeus whiteheadi | 26.00 | | 2.53 | |
| Callorhinchus capensis | 20.00 | 16 | 1.94 | |
| Sepia australis | 18.00 | | 1.75 | |
| Thyrsites atun | 15.34 | 4 | 1.49 | 7285 |
| Macropipus sp. | 14.40 | | 1.40 | |
| Galeorhinus galeus | 13.20 | 2 | 1.28 | |
| Merluccius paradoxus, juvenile | 12.40 | 764 | 1.20 | 7278 |
| Brama brama | 10.00 | 4 | 0.97 | 7283 |
| Zeus capensis | 8.40 | 248 | 0.82 | 7279 |
| Squalus megalops | 8.00 | 18 | 0.78 | |
| Thyrsites atun | 7.66 | 6 | 0.74 | 7284 |
| Merluccius capensis | 7.56 | 2 | 0.73 | 7277 |
| Sufflogobius bibarbatus | 6.00 | | 0.58 | |
| Lepidopus caudatus | 6.00 | | 0.58 | |
| Genypterus capensis | 5.80 | 50 | 0.56 | 7286 |
| Trachurus trachurus | 4.00 | 24 | 0.39 | 7282 |
| Mustelus palumbes | 4.00 | 4 | 0.39 | |
| Torpedo nobiliana | 3.50 | 4 | 0.34 | |
| Raja straeleni | 3.30 | 4 | 0.32 | |
| Congiopodus spinifer | 2.00 | | 0.19 | |
| Cynoglossus zanzibarensis | 2.00 | 16 | 0.19 | 7281 |
| Austroglossus microlepis | 2.00 | 6 | 0.19 | 7280 |
| Todaropsis eblanae | 1.72 | 34 | 0.17 | 7291 |
| Todaropsis eblanae | 1.66 | 40 | 0.16 | 7292 |
| Lophius vomerinus | 0.94 | 4 | 0.09 | 7290 |
| Chelidonichthys queketti | 0.70 | 6 | 0.07 | 7289 |
| Helicolenus dactylopterus | 0.34 | 90 | 0.03 | 7287 |
| Exodromidia sp. | 0.24 | 10 | 0.02 | |
| Sepia hieronis | 0.18 | | 0.02 | |
| Coelorinchus simorynchus | 0.16 | 2 | 0.02 | |
| Squilla sp. | 0.12 | 24 | 0.01 | |
| Paracallionymus costatus | 0.08 | 16 | 0.01 | |
| Octopus vulgaris | 0.06 | | 0.01 | |
| Lolliguncula mercatoris | 0.06 | | 0.01 | |
| Goneplax angulata | 0.00 | 2 | | |
| Total | 1029.06 | | 99.98 | |

PROJECT STATION: 846

DATE:29/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2800

start stop duration Long E 1503

TIME :09:40:47 10:10:29 30 (min) Purpose code:

LOG :1786.53 1788.02 1.49 Area code :

FDEPTH: 184 184 GearCond.code:

BDEPTH: 184 184 Validity code:

Towing dir: 20ø Wire out: 540 m Speed: 30 kn*10

Sorted: Kg Total catch: 546.67 CATCH/HOUR: 1093.34

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 672.00 | 7224 | 61.46 | 7293 |
| Merluccius capensis | 92.00 | 142 | 8.41 | 7294 |
| Lepidopus caudatus | 70.00 | | 6.40 | |
| Merluccius paradoxus, juvenile | 61.04 | 4168 | 5.58 | 7295 |
| Etrumeus whiteheadi | 34.00 | | 3.11 | |
| Zeus capensis | 28.96 | 984 | 2.65 | 7296 |
| Sepia australis | 24.10 | | 2.20 | |
| Chelidonichthys capensis | 23.00 | 64 | 2.10 | 7302 |
| Squalus megalops | 16.80 | 46 | 1.54 | |
| Callorhinchus capensis | 14.00 | 8 | 1.28 | |
| Chelidonichthys queketti | 9.32 | 50 | 0.85 | 7303 |
| Todaropsis eblanae | 8.72 | | 0.80 | |
| Lophius vomerinus | 8.60 | 6 | 0.79 | 7304 |
| Thyrsites atun | 8.00 | 2 | 0.73 | 7299 |
| Trachurus trachurus | 5.32 | 10 | 0.49 | 7298 |
| Macropipus sp. | 5.10 | | 0.47 | |
| Holohalaelurus regani | 3.60 | 24 | 0.33 | |
| Cynoglossus zanzibarensis | 2.32 | 10 | 0.21 | 7297 |
| Raja straeleni | 2.00 | 2 | 0.18 | |
| Todaropsis eblanae | 1.00 | 22 | 0.09 | 7306 |
| Todaropsis eblanae | 0.82 | 12 | 0.07 | 7305 |
| Genypterus capensis | 0.80 | 6 | 0.07 | 7300 |
| Coelorinchus simorynchus | 0.68 | 12 | 0.06 | |
| Sufflogobius bibarbatus | 0.58 | 104 | 0.05 | |
| Paracallionymus costatus | 0.36 | 70 | 0.03 | |
| Squilla sp. | 0.12 | | 0.01 | |
| Helicolenus dactylopterus | 0.10 | 34 | 0.01 | 7301 |
| Total | 1093.34 | | 99.97 | |

PROJECT STATION: 847

DATE:29/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2757

start stop duration Long E 1455

TIME :11:34:06 12:04:22 30 (min) Purpose code:

LOG :1797.52 1799.10 1.56 Area code :

FDEPTH: 196 195 GearCond.code:

BDEPTH: 196 195 Validity code:

Towing dir: 100ø Wire out: 560 m Speed: 31 kn*10

Sorted: Kg Total catch: 564.76 CATCH/HOUR: 1129.52

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 270.00 | 418 | 23.90 | 7308 |
| Merluccius paradoxus, juvenile | 228.40 | 14748 | 20.22 | 7311 |
| Merluccius capensis | 192.00 | 1620 | 17.00 | 7307 |
| Merluccius paradoxus | 84.00 | 902 | 7.44 | 7310 |
| Callorhinchus capensis | 76.00 | 38 | 6.73 | |
| Merluccius paradoxus | 50.20 | 1966 | 4.44 | 7309 |
| Chelidonichthys capensis | 36.00 | 76 | 3.19 | 7318 |
| Squalus megalops | 34.00 | 78 | 3.01 | |
| Trachurus trachurus | 30.00 | 92 | 2.66 | 7315 |
| Zeus capensis | 27.00 | 306 | 2.39 | 7312 |
| Chelidonichthys queketti | 26.00 | 124 | 2.30 | 7319 |
| Macropipus sp. | 14.80 | | 1.31 | |
| Lophius vomerinus | 12.00 | 6 | 1.06 | 7320 |
| Austroglossus microlepis | 11.20 | 28 | 0.99 | 7313 |
| Holohalaelurus regani | 8.00 | | 0.71 | |
| Emmelichthys nitidus | 7.40 | | 0.66 | |
| Genypterus capensis | 6.00 | 18 | 0.53 | 7316 |
| Sepia australis | 3.60 | | 0.32 | |
| Todaropsis eblanae | 2.52 | | 0.22 | |
| Coelorinchus simorynchus | 2.06 | 26 | 0.18 | |
| Cynoglossus zanzibarensis | 1.92 | 10 | 0.17 | 7314 |
| Todaropsis eblanae | 1.70 | 28 | 0.15 | 7322 |
| Lepidopus caudatus | 1.52 | 22 | 0.13 | |
| Todaropsis eblanae | 1.28 | 24 | 0.11 | 7321 |
| Etrumeus whiteheadi | 0.88 | 12 | 0.08 | |
| Sufflogobius bibarbatus | 0.44 | 70 | 0.04 | |
| Sepia hieronis | 0.30 | 8 | 0.03 | |
| Helicolenus dactylopterus | 0.30 | 48 | 0.03 | 7317 |
| Total | 1129.52 | | 100.00 | |

PROJECT STATION: 848

DATE:29/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2804

start stop duration Long E 1447

TIME :13:53:48 14:23:35 30 (min) Purpose code:

LOG :1812.97 1814.56 1.59 Area code :

FDEPTH: 201 199 GearCond.code:

BDEPTH: 201 199 Validity code:

Towing dir: 60ø Wire out: 580 m Speed: 31 kn*10

Sorted: Kg Total catch: 446.93 CATCH/HOUR: 893.86

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 348.00 | 6960 | 38.93 | 7326 |
| Merluccius capensis | 244.00 | 332 | 27.30 | 7324 |
| Callorhinchus capensis | 72.00 | 32 | 8.05 | |
| Chelidonichthys queketti | 50.00 | 208 | 5.59 | 7336 |
| Merluccius paradoxus, juvenile | 38.40 | 2182 | 4.30 | 7327 |
| Merluccius paradoxus | 32.54 | 238 | 3.64 | 7325 |
| Merluccius capensis | 22.60 | 174 | 2.53 | 7323 |
| Holohalaelurus regani | 14.00 | 48 | 1.57 | |
| Zeus capensis | 8.40 | 162 | 0.94 | 7328 |
| Trachurus trachurus | 8.00 | 32 | 0.89 | 7331 |
| Chelidonichthys capensis | 7.60 | 14 | 0.85 | 7335 |
| Squalus megalops | 7.60 | 16 | 0.85 | |
| Etrumeus whiteheadi | 6.50 | | 0.73 | |
| Thyrsites atun | 5.40 | 2 | 0.60 | 7332 |
| Macropipus sp. | 3.56 | | 0.40 | |
| Raja straeleni | 3.00 | 2 | 0.34 | |
| Cynoglossus zanzibarensis | 2.94 | 24 | 0.33 | 7330 |
| Todaropsis eblanae | 2.38 | | 0.27 | |
| Lophius vomerinus | 2.30 | 2 | 0.26 | 7337 |
| Coelorinchus simorynchus | 2.06 | 16 | 0.23 | |
| Todarodes angolensis - females | 1.78 | 2 | 0.20 | 7340 |
| Genypterus capensis | 1.76 | 8 | 0.20 | 7333 |
| Emmelichthys nitidus | 1.68 | 68 | 0.19 | |
| Austroglossus microlepis | 1.50 | 2 | 0.17 | 7329 |
| Sepia australis | 1.46 | | 0.16 | |
| Todaropsis eblanae | 1.20 | 22 | 0.13 | 7339 |
| Todaropsis eblanae | 0.96 | 12 | 0.11 | 7338 |
| Paracallionymus costatus | 0.68 | | 0.08 | |
| Lepidopus caudatus | 0.58 | 4 | 0.06 | |
| Helicolenus dactylopterus | 0.38 | 46 | 0.04 | 7334 |
| Sepia hieronis | 0.22 | 4 | 0.02 | |
| Chlorophthalmus agassizi | 0.22 | 26 | 0.02 | |
| Exodromidia sp. | 0.10 | 8 | 0.01 | |
| Champsodon capensis | 0.06 | 4 | 0.01 | |
| Total | 893.86 | | 100.00 | |

PROJECT STATION: 849

DATE:29/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2801

start stop duration Long E 1439

TIME :15:53:05 16:20:05 27 (min) Purpose code:

LOG :1826.20 1827.58 1.36 Area code :

FDEPTH: 357 354 GearCond.code:

BDEPTH: 357 354 Validity code:

Towing dir: 220ø Wire out: 950 m Speed: 31 kn*10

Sorted: Kg Total catch: 373.32 CATCH/HOUR: 829.59

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 284.44 | 587 | 34.29 | 7343 |
| Coelorinchus simorynchus | 180.00 | | 21.70 | |
| Merluccius paradoxus | 131.11 | 833 | 15.80 | 7342 |
| Genypterus capensis | 115.00 | 71 | 13.86 | 7346 |
| Genypterus capensis | 61.67 | 71 | 7.43 | 7345 |
| Scyliorhinus capensis | 14.44 | 22 | 1.74 | |
| Bathynectes sp. | 8.89 | | 1.07 | |
| Malacocephalus laevis | 8.89 | | 1.07 | |
| Merluccius capensis | 8.33 | 7 | 1.00 | 7341 |
| Todaropsis eblanae | 4.00 | 31 | 0.48 | 7349 |
| Holohalaelurus regani | 2.11 | 7 | 0.25 | |
| Todaropsis eblanae | 1.93 | 16 | 0.23 | 7348 |
| Lucigadus ori | 1.80 | | 0.22 | |
| Galeus polli | 1.78 | 18 | 0.21 | |
| Helicolenus dactylopterus | 1.42 | 11 | 0.17 | 7347 |
| Epigonus sp. | 1.24 | | 0.15 | |
| Tripterophycis gilchristi | 1.11 | | 0.13 | |
| Squalus megalops | 0.67 | 2 | 0.08 | |
| Symbolophorus boops | 0.56 | | 0.07 | |
| Cynoglossus zanzibarensis | 0.09 | 2 | 0.01 | 7344 |
| Parapagurus pilosimanus | 0.07 | 4 | 0.01 | |
| Squilla sp. | 0.04 | 7 | | |
| Paracallionymus costatus | 0.00 | | | |
| Total | 829.59 | | 99.97 | |

PROJECT STATION: 850

DATE:30/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2803

start stop duration Long E 1436

TIME :05:33:07 06:03:26 30 (min) Purpose code:

LOG :1936.09 1937.60 1.51 Area code :

FDEPTH: 461 456 GearCond.code:

BDEPTH: 461 456 Validity code:

Towing dir: 40ø Wire out:1200 m Speed: 30 kn*10

Sorted: Kg Total catch: 106.30 CATCH/HOUR: 212.60

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Coelorinchus simorynchus | 86.00 | | 40.45 | |
| Genypterus capensis | 60.00 | 30 | 28.22 | 7352 |
| Merluccius paradoxus | 22.00 | 18 | 10.35 | 7351 |
| Lophius vomerinus | 8.60 | 6 | 4.05 | 7353 |
| Etmopterus sp. | 6.00 | 244 | 2.82 | |
| Stereomastis sp. | 5.70 | | 2.68 | |
| Merluccius paradoxus | 4.80 | 28 | 2.26 | 7350 |
| Todarodes angolensis - females | 4.40 | 6 | 2.07 | 7355 |
| Funchalia woodwardi | 3.20 | | 1.51 | |
| Myxine capensis | 2.70 | | 1.27 | |
| Malacocephalus laevis | 1.80 | 34 | 0.85 | |
| Notacanthus sexspinis | 1.60 | 112 | 0.75 | |
| Bathynectes sp. | 1.50 | 102 | 0.71 | |
| Epigonus sp. | 1.20 | 116 | 0.56 | |
| Todarodes angolensis - males | 1.10 | 2 | 0.52 | 7354 |
| Lucigadus ori | 0.64 | 66 | 0.30 | |
| Parapagurus pilosimanus | 0.50 | 24 | 0.24 | |
| Tripterophycis gilchristi | 0.26 | 34 | 0.12 | |
| Psychrolutes macrocephalus | 0.20 | 14 | 0.09 | |
| Photichthys argenteus | 0.12 | 14 | 0.06 | |
| Lycoteuthis diadema * | 0.10 | 14 | 0.05 | |
| Symbolophorus boops | 0.06 | 6 | 0.03 | |
| Stoloteuthis sp. | 0.04 | 12 | 0.02 | |
| Squilla sp. | 0.02 | 4 | 0.01 | |
| Mursia cristimanus | 0.02 | 2 | 0.01 | |
| Physiculus capensis | 0.02 | 2 | 0.01 | |
| Diaphus sp. | 0.02 | 4 | 0.01 | |
| Bassanago albescens | 0.00 | 2 | | |
| MYCTOPHIDAE | 0.00 | 4 | | |
| Total | 212.60 | | 100.02 | |

PROJECT STATION: 851

DATE:30/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2749

start stop duration Long E 1434

TIME :08:15:00 08:45:23 30 (min) Purpose code:

LOG :1950.84 1952.39 1.54 Area code :

FDEPTH: 558 555 GearCond.code:

BDEPTH: 558 555 Validity code:

Towing dir: 330ø Wire out:1500 m Speed: 30 kn*10

Sorted: Kg Total catch: 238.07 CATCH/HOUR: 476.14

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Coelorinchus braueri | 144.00 | | 30.24 | |
| Nezumia sp. | 115.66 | | 24.29 | |
| Merluccius paradoxus | 78.00 | 48 | 16.38 | 7357 |
| Funchalia woodwardi | 14.10 | 2144 | 2.96 | |
| Lophius vomerinus | 14.00 | 2 | 2.94 | 7358 |
| Todarodes angolensis - females | 13.80 | 16 | 2.90 | 7360 |
| Hydrolagus africanus | 12.00 | 12 | 2.52 | |
| Krill | 10.00 | | 2.10 | |
| Bathyraja smithii | 10.00 | 2 | 2.10 | |
| Gymnoscopelus sp. | 9.10 | | 1.91 | |
| Todarodes angolensis - males | 8.90 | 18 | 1.87 | 7359 |
| Selachophidium guentheri | 8.20 | 110 | 1.72 | |
| Photichthys argenteus | 7.30 | | 1.53 | |
| Etmopterus sp. | 6.00 | | 1.26 | |
| Raja leopardus | 5.00 | | 1.05 | |
| Notacanthus sexspinis | 4.40 | 140 | 0.92 | |
| Stereomastis sp. | 3.40 | | 0.71 | |
| Etmopterus brachyurus | 3.20 | 10 | 0.67 | |
| Bathophilus longipinnis | 2.00 | 46 | 0.42 | |
| Raja confundens | 1.80 | 4 | 0.38 | |
| Lithodes sp. | 0.80 | 6 | 0.17 | |
| Trachyscorpia capensis | 0.72 | 6 | 0.15 | |
| Coelorinchus matamua | 0.64 | 6 | 0.13 | |
| Malacocephalus laevis | 0.44 | 8 | 0.09 | |
| Scopelosaurus meadi | 0.38 | 52 | 0.08 | |
| Merluccius paradoxus | 0.36 | 2 | 0.08 | 7356 |
| Bathynectes sp. | 0.32 | 30 | 0.07 | |
| Stoloteuthis sp. | 0.24 | | 0.05 | |
| Epigonus sp. | 0.22 | 4 | 0.05 | |
| Lycoteuthis diadema * | 0.20 | 20 | 0.04 | |
| Bassanago albescens | 0.20 | 4 | 0.04 | |
| MYCTOPHIDAE | 0.16 | | 0.03 | |
| Lucigadus ori | 0.12 | 12 | 0.03 | |
| Tripterophycis gilchristi | 0.08 | 4 | 0.02 | |
| Aristaeomorpha foliacea | 0.06 | 2 | 0.01 | |
| Parapagurus pilosimanus | 0.06 | 2 | 0.01 | |
| Bathypolypus valdiviae | 0.06 | 2 | 0.01 | |
| Nemichthys curvirostris | 0.04 | 4 | 0.01 | |
| Howella sherboni | 0.04 | 2 | 0.01 | |
| Electrona risso | 0.04 | 8 | 0.01 | |
| Symbolophorus boops | 0.04 | 4 | 0.01 | |
| Xenodermichthys copei | 0.04 | | 0.01 | |
| Lestidiops sp. | 0.02 | 2 | | |
| Total | 476.14 | | 99.98 | |

PROJECT STATION: 852

DATE:30/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2747

start stop duration Long E 1437

TIME :10:10:08 10:40:13 30 (min) Purpose code:

LOG :1958.46 1960.01 1.55 Area code :

FDEPTH: 445 460 GearCond.code:

BDEPTH: 445 460 Validity code:

Towing dir: 160ø Wire out:1200 m Speed: 30 kn*10

Sorted: Kg Total catch: 324.21 CATCH/HOUR: 648.42

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 294.00 | 512 | 45.34 | 7362 |
| Merluccius paradoxus | 112.00 | 514 | 17.27 | 7361 |
| Coelorinchus simorynchus | 62.00 | | 9.56 | |
| CARIDEA | 56.00 | | 8.64 | |
| Genypterus capensis | 52.00 | 26 | 8.02 | 7363 |
| Coelorinchus braueri | 18.00 | | 2.78 | |
| Todarodes angolensis - males | 10.00 | 22 | 1.54 | 7366 |
| Todarodes angolensis - females | 6.60 | 8 | 1.02 | 7367 |
| Raja leopardus | 5.40 | 10 | 0.83 | |
| Lophius vomerinus | 5.20 | 2 | 0.80 | 7365 |
| Lucigadus ori | 4.00 | | 0.62 | |
| Photichthys argenteus | 3.70 | | 0.57 | |
| Parapagurus pilosimanus | 3.20 | | 0.49 | |
| Nezumia sp. | 2.00 | | 0.31 | |
| Malacocephalus laevis | 2.00 | | 0.31 | |
| Galeus polli | 1.80 | 14 | 0.28 | |
| Selachophidium guentheri | 1.64 | | 0.25 | |
| Bassanago albescens | 1.40 | 6 | 0.22 | |
| Psychrolutes macrocephalus | 1.20 | 28 | 0.19 | |
| Helicolenus dactylopterus | 1.20 | 10 | 0.19 | 7364 |
| Paracallionymus costatus | 0.88 | 50 | 0.14 | |
| Bathophilus longipinnis | 0.78 | 20 | 0.12 | |
| Notacanthus sexspinis | 0.60 | 20 | 0.09 | |
| Lycoteuthis diadema * | 0.56 | 52 | 0.09 | |
| Bathynectes sp. | 0.40 | 50 | 0.06 | |
| Coelorinchus matamua | 0.28 | 8 | 0.04 | |
| Etmopterus sp. | 0.28 | 12 | 0.04 | |
| Myxine capensis | 0.24 | 2 | 0.04 | |
| Stereomastis sp. | 0.20 | | 0.03 | |
| Epigonus sp. | 0.20 | 4 | 0.03 | |
| Tripterophycis gilchristi | 0.10 | 4 | 0.02 | |
| Rochinia sp. | 0.08 | 6 | 0.01 | |
| Stoloteuthis sp. | 0.08 | | 0.01 | |
| Rossia enigmatica | 0.06 | | 0.01 | |
| Lestidiops sp. | 0.06 | 4 | 0.01 | |
| Gymnoscopelus sp. | 0.06 | 8 | 0.01 | |
| Electrona risso | 0.06 | 16 | 0.01 | |
| Symbolophorus boops | 0.06 | 6 | 0.01 | |
| Diaphus sp. | 0.04 | 18 | 0.01 | |
| Sepia sp. New SA | 0.02 | 2 | | |
| Scopelosaurus herwigi | 0.02 | 2 | | |
| Diaphus effulgens | 0.02 | 2 | | |
| Abraliopsis gilchristi | 0.00 | 2 | | |
| Argentina euchus | 0.00 | 2 | | |
| Total | 648.42 | | 100.01 | |

PROJECT STATION: 853

DATE:30/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2742

start stop duration Long E 1449

TIME :12:30:07 12:51:12 21 (min) Purpose code:

LOG :1973.08 1974.21 1.12 Area code :

FDEPTH: 357 353 GearCond.code:

BDEPTH: 357 353 Validity code:

Towing dir: 345ø Wire out: 950 m Speed: 31 kn*10

Sorted: Kg Total catch: 406.01 CATCH/HOUR: 1160.04

| SPECIES | CATCH/HOUR weight | CATCH/HOUR numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius paradoxus | 674.29 | 5997 | 58.13 | 7368 |
| Trachurus trachurus | 280.00 | 743 | 24.14 | 7370 |
| Merluccius paradoxus | 65.71 | 117 | 5.66 | 7369 |
| Coelorinchus simorynchus | 34.29 | | 2.96 | |
| Genypterus capensis | 24.29 | 29 | 2.09 | 7373 |
| Squilla sp. | 20.00 | | 1.72 | |
| Bathynectes sp. | 14.29 | | 1.23 | |
| Thyrsites atun | 13.14 | 9 | 1.13 | 7372 |
| Lophius vomerinus | 11.43 | 6 | 0.99 | 7375 |
| Brama brama | 5.71 | 6 | 0.49 | 7371 |
| Todaropsis eblanae | 4.00 | 37 | 0.34 | 7377 |
| Todarodes angolensis - females | 3.86 | 6 | 0.33 | 7378 |
| Lepidopus caudatus | 2.57 | 3 | 0.22 | |
| Todaropsis eblanae | 2.26 | 31 | 0.19 | 7376 |
| Malacocephalus laevis | 1.43 | | 0.12 | |
| Galeus polli | 1.11 | | 0.10 | |
| Helicolenus dactylopterus | 0.40 | 3 | 0.03 | 7374 |
| Ophichthus bennettai | 0.31 | | 0.03 | |
| Etmopterus sp. | 0.23 | | 0.02 | |
| Selachophidium guentheri | 0.20 | | 0.02 | |
| Lucigadus ori | 0.14 | | 0.01 | |
| Coelorinchus braueri | 0.14 | | 0.01 | |
| Nezumia sp. | 0.09 | | 0.01 | |
| Stereomastis sp. | 0.03 | | | |
| Mursia cristimanus | 0.03 | | | |
| Physiculus capensis | 0.03 | | | |
| Chlorophthalmus agassizi | 0.03 | | | |
| Maurolicus muelleri | 0.03 | | | |
| Rochinia sp. | 0.00 | | | |
| Total | 1160.04 | | 99.97 | |

PROJECT STATION: 854

DATE:30/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2738

start stop duration Long E 1458

TIME :14:20:49 14:41:57 21 (min) Purpose code:

LOG :1984.04 1985.15 1.11 Area code :

FDEPTH: 234 235 GearCond.code:

BDEPTH: 234 235 Validity code:

Towing dir: 20ø Wire out: 650 m Speed: 31 kn*10

Sorted: Kg Total catch: 381.65 CATCH/HOUR: 1090.43

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 542.86 | 5057 | 49.78 | 7379 |
| Trachurus trachurus | 134.29 | 840 | 12.32 | 7385 |
| Merluccius paradoxus | 91.43 | 2657 | 8.38 | 7381 |
| Thyrsites atun | 61.71 | 43 | 5.66 | 7386 |
| Merluccius capensis | 51.43 | 100 | 4.72 | 7380 |
| Callorhinchus capensis | 48.57 | 29 | 4.45 | |
| Chelidonichthys capensis | 40.00 | 57 | 3.67 | 7389 |
| Genypterus capensis | 37.14 | 106 | 3.41 | 7387 |
| Coelorinchus simorynchus | 14.29 | | 1.31 | |
| Etrumeus whiteheadi | 11.43 | | 1.05 | |
| Sepia australis | 10.71 | | 0.98 | |
| Lophius vomerinus | 9.20 | 23 | 0.84 | 7390 |
| Bathynectes sp. | 8.57 | | 0.79 | |
| Sufflogobius bibarbatus | 5.71 | | 0.52 | |
| Raja straeleni | 4.00 | 20 | 0.37 | |
| Squalus megalops | 4.00 | 9 | 0.37 | |
| Austroglossus microlepis | 2.86 | 6 | 0.26 | 7384 |
| Todaropsis eblanae | 2.77 | 40 | 0.25 | 7392 |
| Lepidopus caudatus | 2.69 | 23 | 0.25 | |
| Todaropsis eblanae | 1.49 | 26 | 0.14 | 7391 |
| Todarodes angolensis - males | 1.40 | | 0.13 | 7393 |
| Squilla sp. | 1.06 | 174 | 0.10 | |
| Merluccius paradoxus | 0.91 | 3 | 0.08 | 7382 |
| Zeus capensis | 0.86 | 6 | 0.08 | 7383 |
| Beryx splendens | 0.29 | 3 | 0.03 | |
| Maurolicus muelleri | 0.29 | | 0.03 | |
| Macropipus sp. | 0.11 | 6 | 0.01 | |
| Helicolenus dactylopterus | 0.09 | 26 | 0.01 | 7388 |
| Emmelichthys nitidus | 0.09 | 3 | 0.01 | |
| Chlorophthalmus agassizi | 0.06 | 6 | 0.01 | |
| Exodromidia sp. | 0.03 | 3 | | |
| Sepia hieronis | 0.03 | 3 | | |
| Lolligoncula mercatoris | 0.03 | 11 | | |
| Paracallionymus costatus | 0.03 | 3 | | |
| Inioteuthis capensis | 0.00 | 3 | | |
| Total | 1090.43 | | 100.01 | |

PROJECT STATION: 855

DATE:30/ 4/04 GEAR TYPE: BT No:15 POSITION:Lat S 2733

start stop duration Long E 1503

TIME :15:41:11 16:11:13 30 (min) Purpose code:

LOG :1991.39 1993.04 1.64 Area code :

FDEPTH: 186 187 GearCond.code:

BDEPTH: 186 187 Validity code:

Towing dir: 20ø Wire out: 550 m Speed: 31 kn*10

Sorted: Kg Total catch: 497.98 CATCH/HOUR: 995.96

| SPECIES | CATCH/HOUR weight | numbers | % OF TOT. C | SAMP |
|---|---|---|---|---|
| Merluccius capensis | 412.00 | 5142 | 41.37 | 7394 |
| Chelidonichthys capensis | 148.00 | 328 | 14.86 | 7403 |
| Sepia australis | 90.00 | | 9.04 | |
| Trachurus trachurus | 84.00 | 582 | 8.43 | 7399 |
| Thyrsites atun | 62.00 | 42 | 6.23 | 7400 |
| Merluccius paradoxus, juvenile | 56.40 | 3444 | 5.66 | 7396 |
| Merluccius capensis | 40.00 | 76 | 4.02 | 7395 |
| Callorhinchus capensis | 34.00 | | 3.41 | |
| Genypterus capensis | 21.80 | 212 | 2.19 | 7401 |
| Austroglossus microlepis | 11.90 | 52 | 1.19 | 7398 |
| Mustelus palumbes | 6.00 | 2 | 0.60 | |
| Macropipus sp. | 5.40 | | 0.54 | |
| Lophius vomerinus | 5.00 | 22 | 0.50 | 7404 |
| Etrumeus whiteheadi | 3.90 | | 0.39 | |
| Squalus megalops | 3.70 | 6 | 0.37 | |
| Todaropsis eblanae | 3.20 | | 0.32 | |
| Raja straeleni | 2.00 | | 0.20 | |
| Sufflogobius bibarbatus | 1.50 | | 0.15 | |
| Torpedo nobiliana | 1.50 | | 0.15 | |
| Todaropsis eblanae | 0.96 | 14 | 0.10 | 7405 |
| Squilla sp. | 0.76 | 32 | 0.08 | |
| Exodromidia sp. | 0.70 | 36 | 0.07 | |
| Todaropsis eblanae | 0.64 | 12 | 0.06 | 7406 |
| Zeus capensis | 0.32 | 6 | 0.03 | 7397 |
| Maurolicus muelleri | 0.16 | | 0.02 | |
| Helicolenus dactylopterus | 0.10 | 28 | 0.01 | 7402 |
| Lolligoncula mercatoris | 0.02 | 6 | | |
| Total | 995.96 | | 99.99 | |

## Annex II Hake catches in kg per hour by trawl station

| Station | Lat. | Long. | Depth | Juvenile deepw. Hake | Deepwater Hake | Juvenile Cape hake | Cape hake |
|---|---|---|---|---|---|---|---|
| 806 | -27,37 | 15,23 | 116 | 0,0 | 0,0 | 0,0 | 38,4 |
| 807 | -27,40 | 15,08 | 165 | 0,0 | 0,0 | 0,0 | 375,5 |
| 808 | -27,48 | 14,97 | 243 | 0,0 | 402,0 | 0,0 | 62,0 |
| 809 | -27,55 | 14,80 | 325 | 0,0 | 448,0 | 0,0 | 0,0 |
| 810 | -27,57 | 14,70 | 343 | 0,0 | 411,0 | 0,0 | 30,0 |
| 811 | -27,67 | 14,55 | 446 | 0,0 | 98,2 | 0,0 | 0,0 |
| 812 | -28,37 | 14,82 | 196 | 0,0 | 310,0 | 0,0 | 192,0 |
| 813 | -28,32 | 14,95 | 182 | 74,6 | 70,4 | 0,0 | 417,4 |
| 814 | -28,27 | 15,10 | 180 | 0,0 | 124,8 | 0,0 | 480,0 |
| 815 | -28,05 | 15,58 | 92 | 0,0 | 0,0 | 0,0 | 23,2 |
| 816 | -28,80 | 16,33 | 84 | 0,0 | 0,0 | 18,0 | 2505,0 |
| 817 | -28,92 | 16,08 | 150 | 804,0 | 0,0 | 0,0 | 90,6 |
| 818 | -29,00 | 15,85 | 176 | 0,0 | 44,5 | 0,0 | 64,5 |
| 819 | -29,05 | 15,70 | 180 | 168,8 | 21,9 | 0,0 | 110,6 |
| 820 | -29,17 | 15,47 | 186 | 120,0 | 52,4 | 0,0 | 134,5 |
| 821 | -29,30 | 15,07 | 177 | 20,0 | 11,0 | 0,0 | 164,0 |
| 822 | -29,37 | 14,92 | 198 | 0,7 | 8,3 | 0,0 | 77,4 |
| 823 | -29,37 | 14,63 | 326 | 0,0 | 494,0 | 0,0 | 102,0 |
| 824 | -29,48 | 14,58 | 431 | 0,0 | 1440,0 | 0,0 | 6,0 |
| 825 | -29,52 | 14,53 | 523 | 0,0 | 162,0 | 0,0 | 0,0 |
| 826 | -29,37 | 14,53 | 442 | 0,0 | 159,2 | 0,0 | 8,8 |
| 827 | -29,22 | 14,48 | 447 | 0,3 | 518,7 | 0,0 | 0,0 |
| 828 | -29,03 | 14,40 | 485 | 0,0 | 1206,0 | 0,0 | 0,0 |
| 829 | -29,02 | 14,47 | 334 | 0,0 | 434,4 | 0,0 | 180,0 |
| 830 | -28,90 | 14,40 | 435 | 0,0 | 608,0 | 0,0 | 0,0 |
| 831 | -28,57 | 14,33 | 567 | 0,0 | 36,8 | 0,0 | 0,0 |
| 832 | -28,53 | 14,40 | 446 | 0,0 | 342,9 | 0,0 | 6,4 |
| 833 | -28,17 | 14,47 | 561 | 0,0 | 32,0 | 0,0 | 0,0 |
| 834 | -28,15 | 14,52 | 468 | 0,0 | 66,0 | 0,0 | 0,0 |
| 835 | -28,15 | 14,55 | 384 | 0,0 | 310,0 | 0,0 | 56,0 |
| 836 | -28,28 | 14,45 | 475 | 0,0 | 42,8 | 0,0 | 0,0 |
| 837 | -28,42 | 14,43 | 419 | 0,0 | 288,0 | 0,0 | 18,0 |
| 838 | -28,68 | 14,37 | 450 | 0,0 | 354,0 | 0,0 | 0,0 |
| 839 | -28,55 | 14,42 | 380 | 0,0 | 170,0 | 0,0 | 0,0 |
| 840 | -28,45 | 14,60 | 171 | 0,0 | 0,0 | 0,0 | 433,3 |
| 841 | -28,33 | 14,62 | 175 | 0,0 | 0,0 | 0,0 | 60,0 |
| 842 | -28,28 | 14,72 | 210 | 18,2 | 228,8 | 0,0 | 152,0 |
| 843 | -28,23 | 14,92 | 190 | 82,4 | 268,0 | 0,0 | 511,0 |
| 844 | -27,77 | 15,33 | 132 | 0,0 | 0,0 | 0,0 | 153,4 |
| 845 | -27,88 | 15,10 | 168 | 12,4 | 0,0 | 0,0 | 660,8 |
| 846 | -28,00 | 15,05 | 184 | 61,0 | 0,0 | 0,0 | 764,0 |
| 847 | -27,95 | 14,92 | 196 | 228,4 | 134,2 | 0,0 | 462,0 |
| 848 | -28,07 | 14,78 | 200 | 38,4 | 380,5 | 0,0 | 266,6 |
| 849 | -28,02 | 14,65 | 356 | 0,0 | 415,6 | 0,0 | 8,3 |
| 850 | -28,05 | 14,60 | 459 | 0,0 | 26,8 | 0,0 | 0,0 |
| 851 | -27,82 | 14,57 | 557 | 0,0 | 78,4 | 0,0 | 0,0 |
| 852 | -27,78 | 14,62 | 453 | 0,0 | 406,0 | 0,0 | 0,0 |
| 853 | -27,70 | 14,82 | 355 | 0,0 | 740,0 | 0,0 | 0,0 |
| 854 | -27,63 | 14,97 | 235 | 0,0 | 92,3 | 0,0 | 594,3 |
| 855 | -27,55 | 15,05 | 187 | 56,4 | 0,0 | 0,0 | 452,0 |

## Annex III 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.

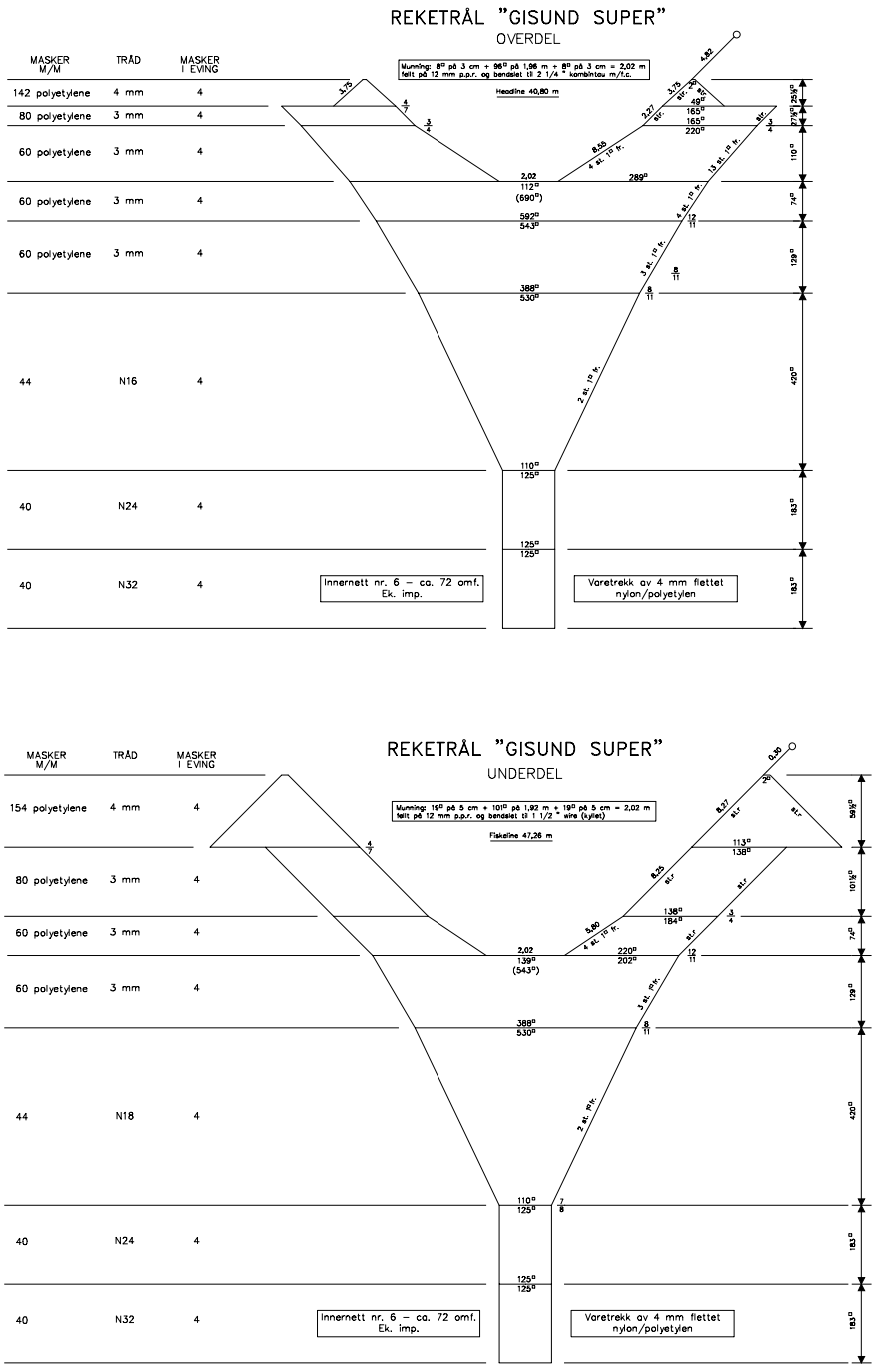


**Figure 1** Design of the trawl used.

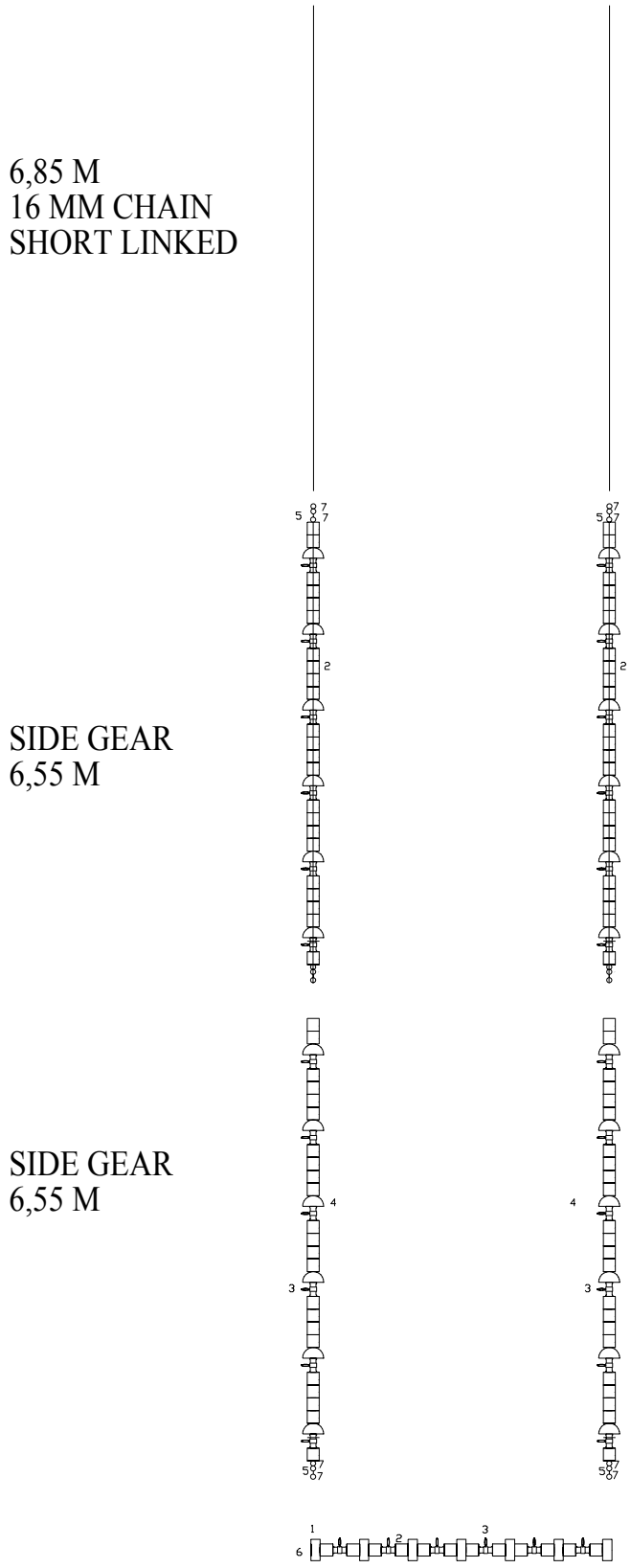


**Figure 2** Schematic drawing of the ground gear used in the experiment.