



SURVEYS OF THE FISH RESOURCES OF NAMIBIA

Preliminary Report Cruise No 1 25 January - 19 March 1990

The "DR. FRIDTJOF NANSEN" RESEARCH PROGRAMME is sponsored by the Norwegian Agency for Development Cooperation NORAD, the Food and Agriculture Organization of the United Nations FAO, and the United Nations Development Programme UNDP. The programme in Namibia is being conducted and planned under agreements between UNDP, Namibian authorities and the Institute of Marine Research, Norway. Its execution is the responsibility of the Institute of Marine Research, Bergen in cooperation with the appointed Namibian representatives.

The programme will comprise several surveys, the timing of which is foreseen as follows:

Survey 1	8 weeks,	25 January to 19 March
" 2	4 "	appr. 23 May - 20 June
" 3	4 "	September
" 4	4 "	November-December

This cruise report describes the work and some of the findings of the first survey. A full report will be issued after the completion of the programme.

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1 INTRODUCTION

1.1 Objectives

Following an offer from NORAD extended through FAO and UNDP, an agreement was reached in Windhoek in January 1990 between the UNDP Resident Representative and Namibian authorities for the execution of a programme of surveys of the fish resources of the Namibian shelf waters during 1990 with the R/V "DR. FRIDTJOF NANSEN".

The purpose of the programme was agreed as follows:

The main objectives are descriptions of the distribution, composition and abundance of the most important resources of fish and shellfish (although little information is expected to be obtained on lobster). The small pelagic fish horse mackerel, sardine and anchovy will be investigated by the acoustic integration method combined with sampling with mid-water and bottom trawls. A swept area trawl survey programme will be used for the demersal stocks. All catches will be sampled to species by weight and numbers and biological sampling will be made of the commercially important stocks.

Environmental studies will include recording of surface temperature on a continuous basis and occupation of hydrographic stations in a series of fixed profiles as well as studies of bottom type by grab samples and the ROXANN bottom discrimination system.

Possible taxonomic problems will be studied by sampling and examination by experts in cooperation with FAO's Fisheries Department.

1.2 Participation

The scientific staff from Namibia were:

To 4. February : Dr. Gert Cloete, Serubal Kahina and Willem Nauieb;

from 4 to 22 February: Othniel Tjuma, David Gawaseb, Quin Hammond, Malakia Shimhandu and Christof Uirab;

from 25 February to 19 March: Bernatitus Birisamub, Serubabel Kahiha, Willem Naoiseb, Peter Schivute and Helen Smit.

The scientific staff from the Institute of Marine Research were:

G. Saetersdal (to 23 February), J. Kolding (to 23 February), Tore Strømme (from 24 February), Oddgeir Alvheim (from 24 February), M. Dahl and E. Molvaer.

1.3 Narrative

Figures 1a-c show the course tracks with the fishing stations and the hydrographic profiles.

The vessel left Walvis Bay in the morning of 26 January. A planned calibration of the acoustic instruments off the entrance of the bay had to be cancelled due to unfavourable conditions. After steaming south, work started off the Orange River in the morning of 28 January. An acoustic cum trawl survey was conducted over the shelf northwards from the shore out to 300-400 m where a Spanish trawler fleet was working. Gear damage from rough bottom was experienced although special annotated Spanish charts were available. A bobbins ground line was installed. A hydrographic profile was worked from southwest 80 nm towards Panther Head. Lüderitz was visited on 4 February for exchange of participants. The survey was continued northwards with trawl stations out to 500 m and a hydrographic profile off Hottentot Point on 6 February. By 8 February the shelf up to 25°S, the part included in ICSEAF Div. 1.5 had been covered with a total of 68 fishing stations distributed at depths down to 500 m along course lines crossing the shelf with roughly 20 nm distance. In some of the inshore areas a more detailed course grid was used.

The coverage from 25°S northwards to Ambrose Bay is shown in figure 1b. Bottom conditions on the offshore shelf for the demersal trawl improved in this region and the trawl could be used without bobbins gear. A hydrographical section was worked off Conception Bay on 11 February. A problem of sampling with the demersal trawl in this area was the very soft muddy bottom found in a belt inshore along the coast some times reaching out beyond 150 m of depth. However, the successful hauls made on such bottom were almost devoid of fish. Schools and layers of pelagic fish were found in increasing abundance northwards, in inshore areas as well as over the middle part of the shelf. The basic cruise track distance of 20 nm was decreased to about 10 nm in these areas and special sampling efforts were made during nighttime in the school areas. The profile off Cape Cross was worked 17-18 February, but the two outermost stations were repeated on 20 February because of some problems with the first observations. The vessel called on Walvis Bay on 22 February for exchange of staff.

The work continued northwards on 25 February. An acoustic sampling net was laid out with transects 20 nm apart. During daytime hours random bottom trawl stations were positioned along the cruisetrack. The northbound survey served as a pilot study for a finer grid laid out on the following southward bound coverage. During the first part it proved difficult to sample acoustically the main part of the sardine and the anchovy, mainly localized in shallow waters, as it tended to move very shallow or close to the surface during daylight hours. The best tactics proved to be to sample the inshore waters during night hours, and covering the outer shelf during daylight. This sampling scheme was followed for the southward bound coverage. The 20-100 m bottom depth zone was then covered with zig-zag pattern 10 nm apart, and the shelf from 100 to 250 m with 15 nm transect interdistance. Areas where presence of sardines was spotted or reported by the fishing fleet, were covered again in order to improve the chance of detection.

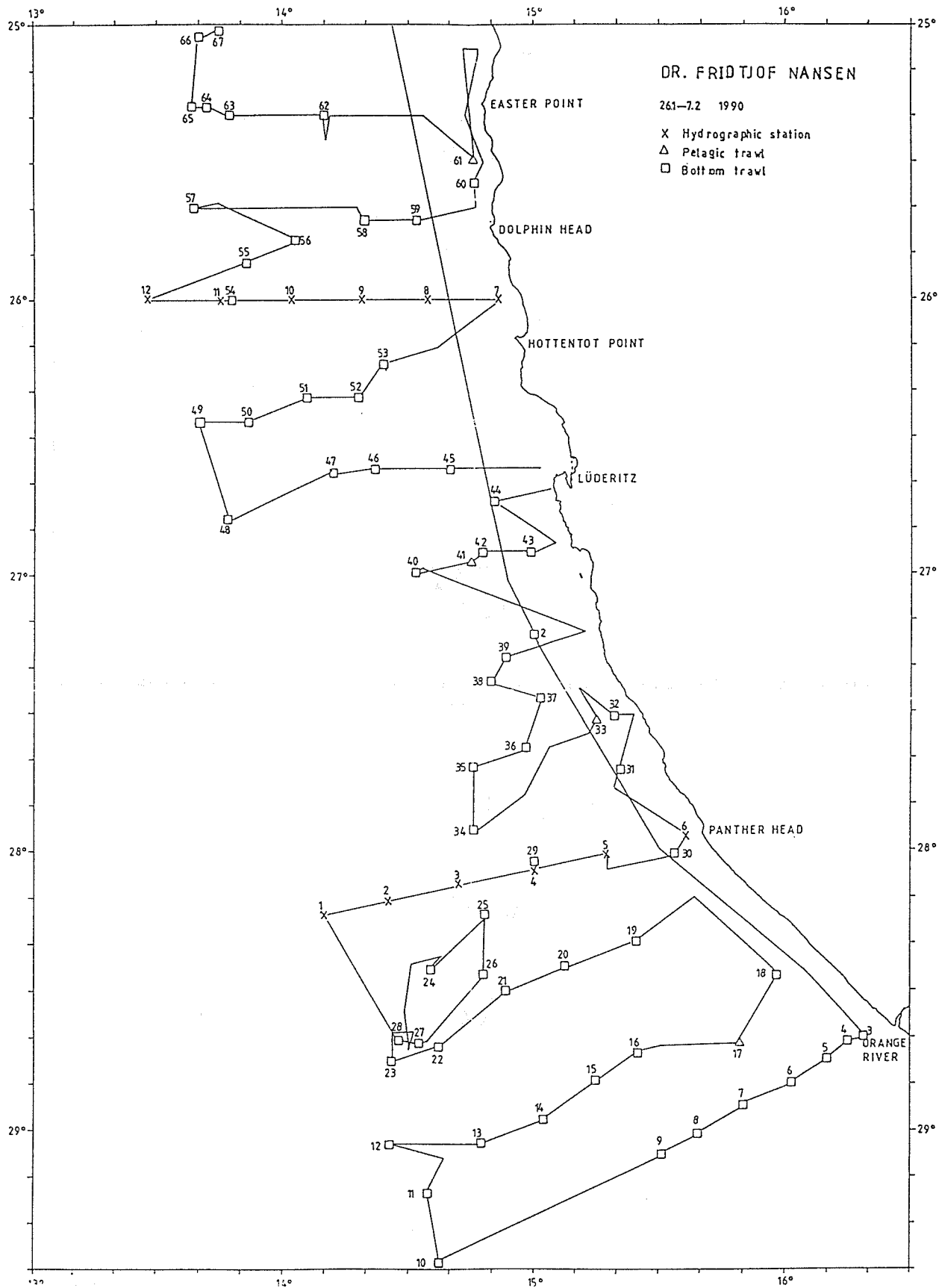


Figure 1. Course tracks with fishing stations and hydrographic profiles, a: Orange River to St. Francis Bay, b: St. Francis Bay to Ambrose Bay, c: Ambrose Bay to Cunene River.

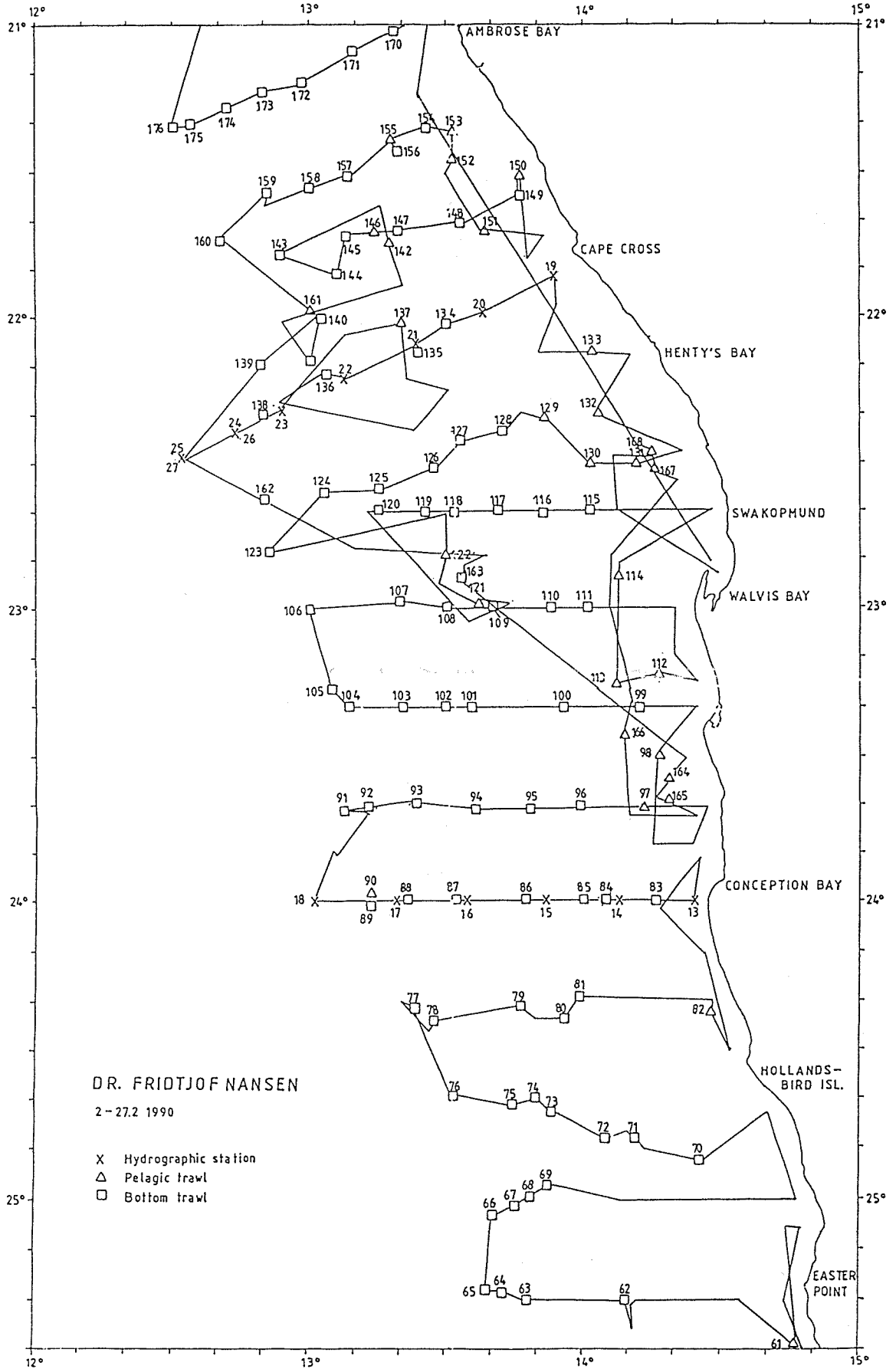


Figure 1b.

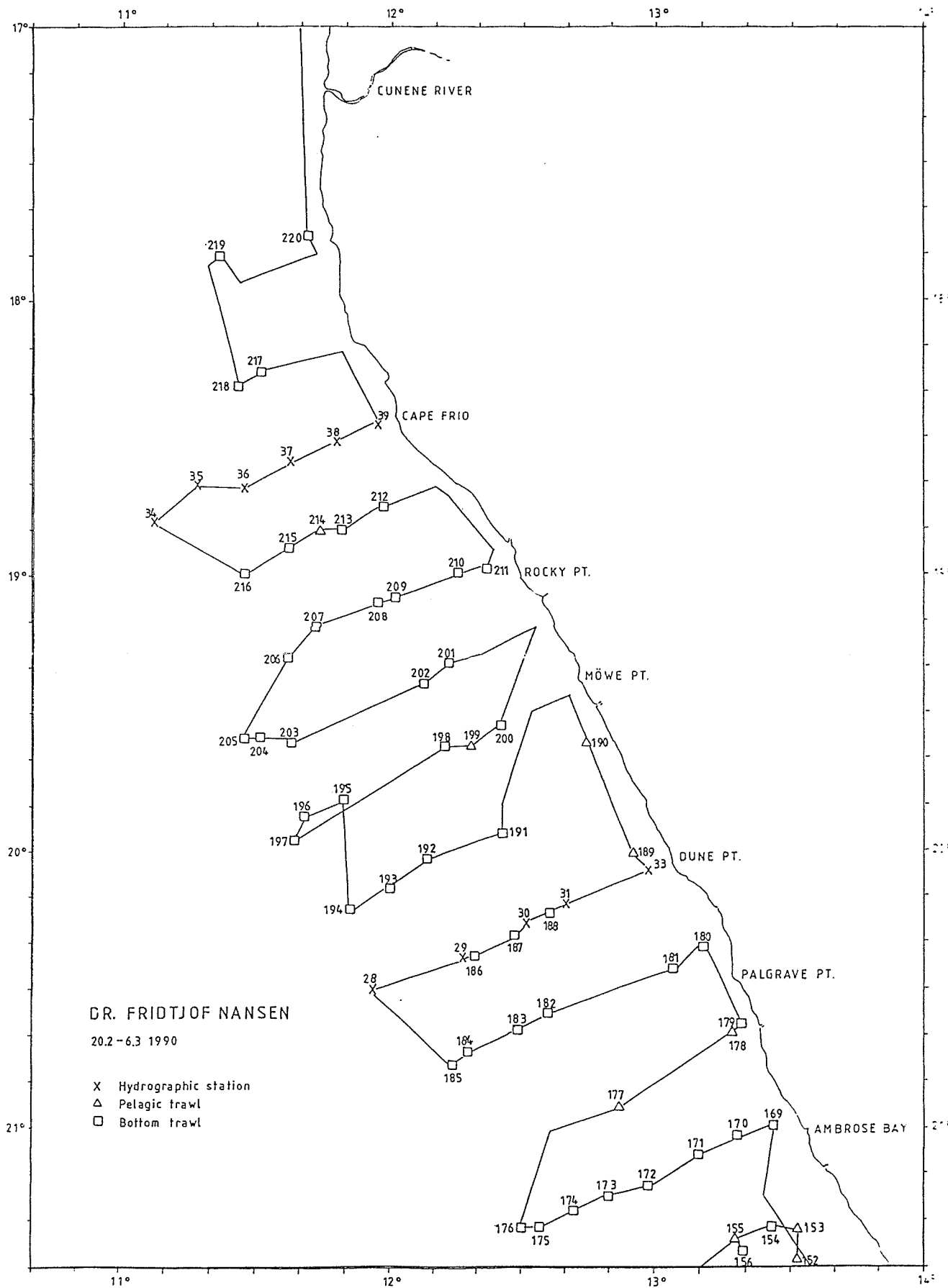


Figure 1c.

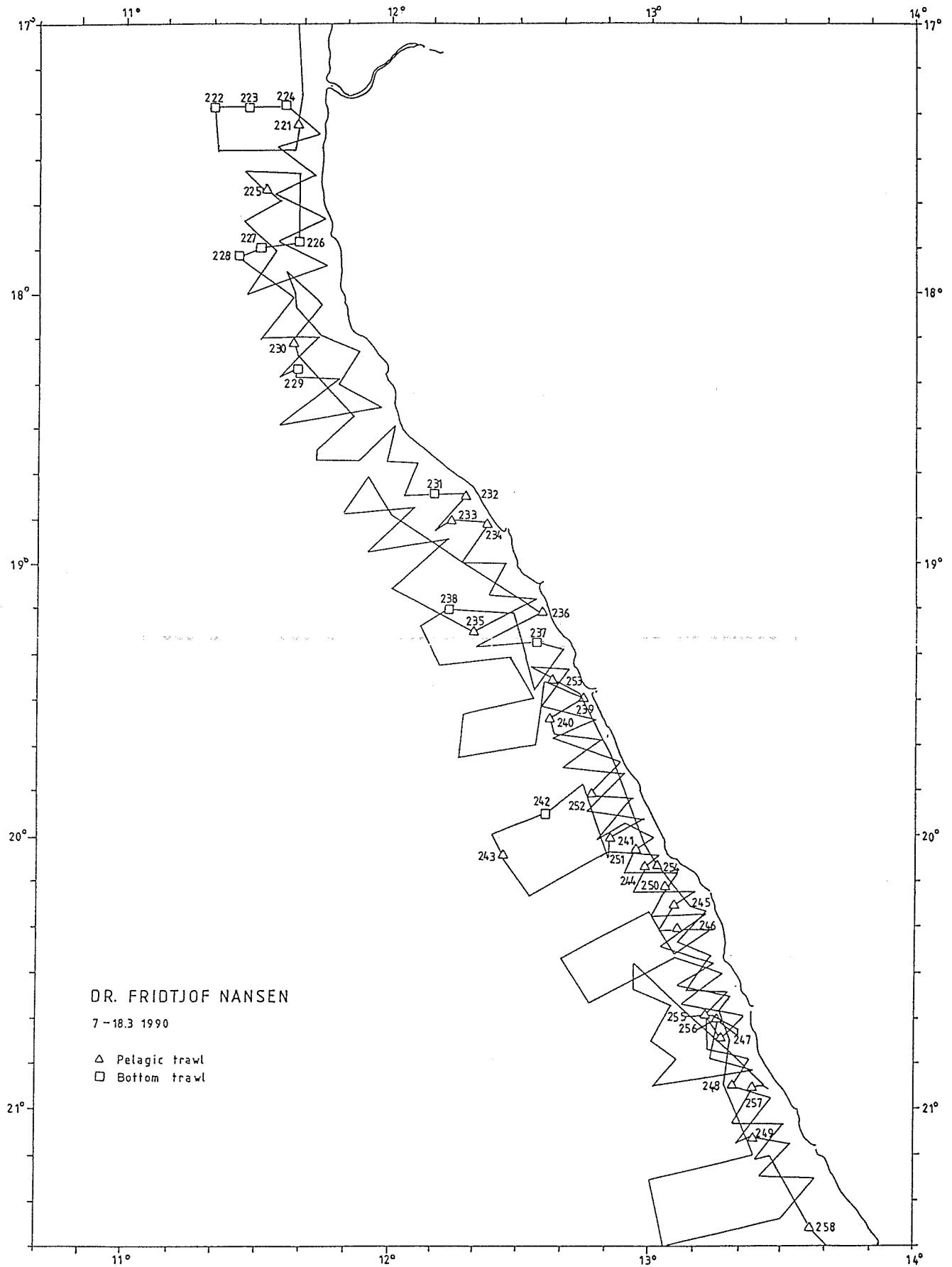


Figure 1c.

Hydrographic profiles were worked off Dune Point and Cape Frio on 28 February and 4-5 March respectively.

The acoustic instruments were calibrated in an experiment in Bahia dos Tigres, Angola on March 7.

The vessel arrived in Walvis Bay on 18 March, ending the survey.

Annex III gives a description of the instruments and the fishing gear used.

2 THE ENVIRONMENT

2.1 The shelf and the slope

Table 1 shows the approximate extensions of the areas between various depth ranges along the coast based on estimates from own observations and use of Spanish fishing charts.

	100-250m	250-350m	350-450m	450-550m
Orange R. -25°	11 300	3 200	3 000	2 000
25° - 21°	8 300	3 500	1 900	1 000
21° -Cunene R.	5 100	2 700	1 600	800

From the Orange River up to Panther Head the shelf is wide with the 200 m depth 70 - 80 nm offshore. The slope is relatively steep and the 500 m line lies about 90 nm offshore. Considerable parts of the bottom are uneven and rough, especially inshore. Hard and rough bottom was also found in the slope, especially around the 300 m range. From Panther Head up past Lüderitz the 200 m line approaches to about 20 nm off the shore, but the slope is gentler and the 500 m line lies 50-60 nm or more off the coast. Rough and uneven bottom is common over the inshore parts. In the northern part of Division 1.5 up past Easter Cliff the shelf is wide with the 500 m depth at about 70 nm from the coast and with more than half of that width consisting of a gently deepening slope from 200 to 500 m. Rough uneven bottom dominates the innermost parts of the shelf up to 20-30 nm from the coast and there is also rough ground offshore especially off Dolphins Head at 200-300 m of depth.

The broad shelf continues from 25°S northwards towards Ambrose Bay with a generally gentle slope from 200 to 400 m depth. Most of the bottom is smooth with few and limited rough parts. An inshore belt extending out past 100 m depth, somewhere to 150 m has very soft muddy bottom. At times indications of anoxic conditions were found in this type of bottom and catches were absent or low. In some hauls from this zone the trawl contained large numbers of fish bones, in other cases large amounts of dead mussels. It seems likely that this mud layer mainly derives from the intensive organic pro-

duction caused by the upwelling and that anoxic conditions associated with it at times causes mass mortalities of fish and shellfish.

From Ambrose Bay up towards Cape Frio the shelf maintains a width of about 70 nm to the 500 m depth line with about half consisting of a gentle slope from 200 m outwards. From Cape Frio to Cunene the shelf narrows to about 25 nm with a steep slope from the 200 m depth line.

2.2 Hydrography

The figures 2a-c show the sea temperature at 4 m of depth as observed with the ship's thermograph and Figures 3a-e show the distribution of temperature, salinity and oxygen in the 5 hydrographic transects worked. The position of the transects are shown in figure 1a-c.

In the profile off Hottentot Point the surface temperature shows the shorewards decline typical for this area of coastal upwelling. From about Lüderitz northwards past Hottentot Point there is an increase of cold upwelled water. This is probably related to the configuration of the shelf with its westwards turning slope at about this latitude. The Hottentot profile shows isotherms sloping upwards from about 200 m of depths. Also the salinities of the surface layers indicate an origin of water from a depth of about 200 m. The oxygen content of the bottom water layer is less than 1 ml/l over the whole shelf.

As shown in figure 2b the cold surface water, lower than 19°C was found out to the shelf edge also further north up to about Walvis Bay, but from here on this isotherm was located well inside the shelf, from a few up to 20-30 nm from the shore. The hydrographical transects off Conception Bay and Cape Cross, figure 3c demonstrate active upwelling from about 200 m of depth. The oxygen content of the bottom water of the entire shelf is below 1 ml/l.

The surface temperature between Ambrose Bay and Cunene River is pictured in figure 2c, and the profiles of the two hydrographic sections in the same region, off Dune Point and Cape Frio, are shown in figure 3c. The surface temperature shows two clear centers of coastal upwelling, between Palgrave Point and Møwe Point and between Cape Frio and the Cunene River. The temperature falls below 17°C in the first center and below 16°C in the second. The picture is confirmed in the profiles, which also portrays low-oxygen bottom conditions on most of the shelf. Off Dune Point the whole shelf is supplied with less than 1 ml/l oxygen, and off Cape Frio the values are less than 2 ml/l, with the 1 ml/l isoline at 100 m bottom depth. In the pelagial over the shelf the oxygen content is relatively high down to 50 m depth, except in the very coastal zone where the deep water rises to surface.

The period of hydrographic observations cover more than a month and the description is thus not very synoptical. Viewed as a whole the findings indicate a largely average situation for this late summer season. The locations of upwelling correspond to the main upwelling cells described for this region: the Lüderitz- Walvis Bay- and Namibia cells. Late summer and autumn is the season when in some years warm tropical water intrudes from the north and northwest onto the northern and central Namibian coast. This type of

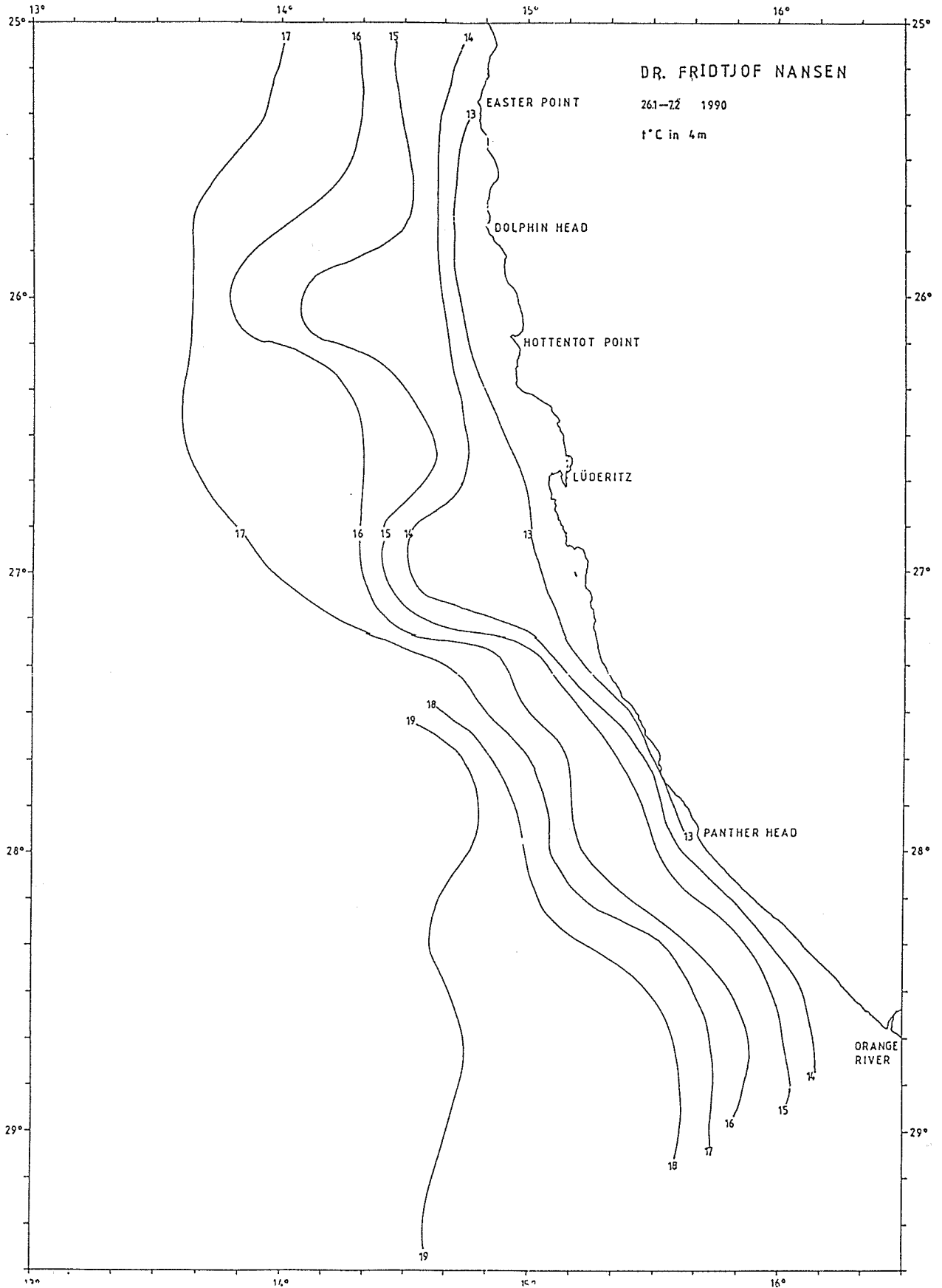


Figure 2. Temperature at sea surface. a: Orange River to St. Francis Bay, b: St. Francis Bay to Ambrose Bay, c: Ambrose Bay to Cunene River.

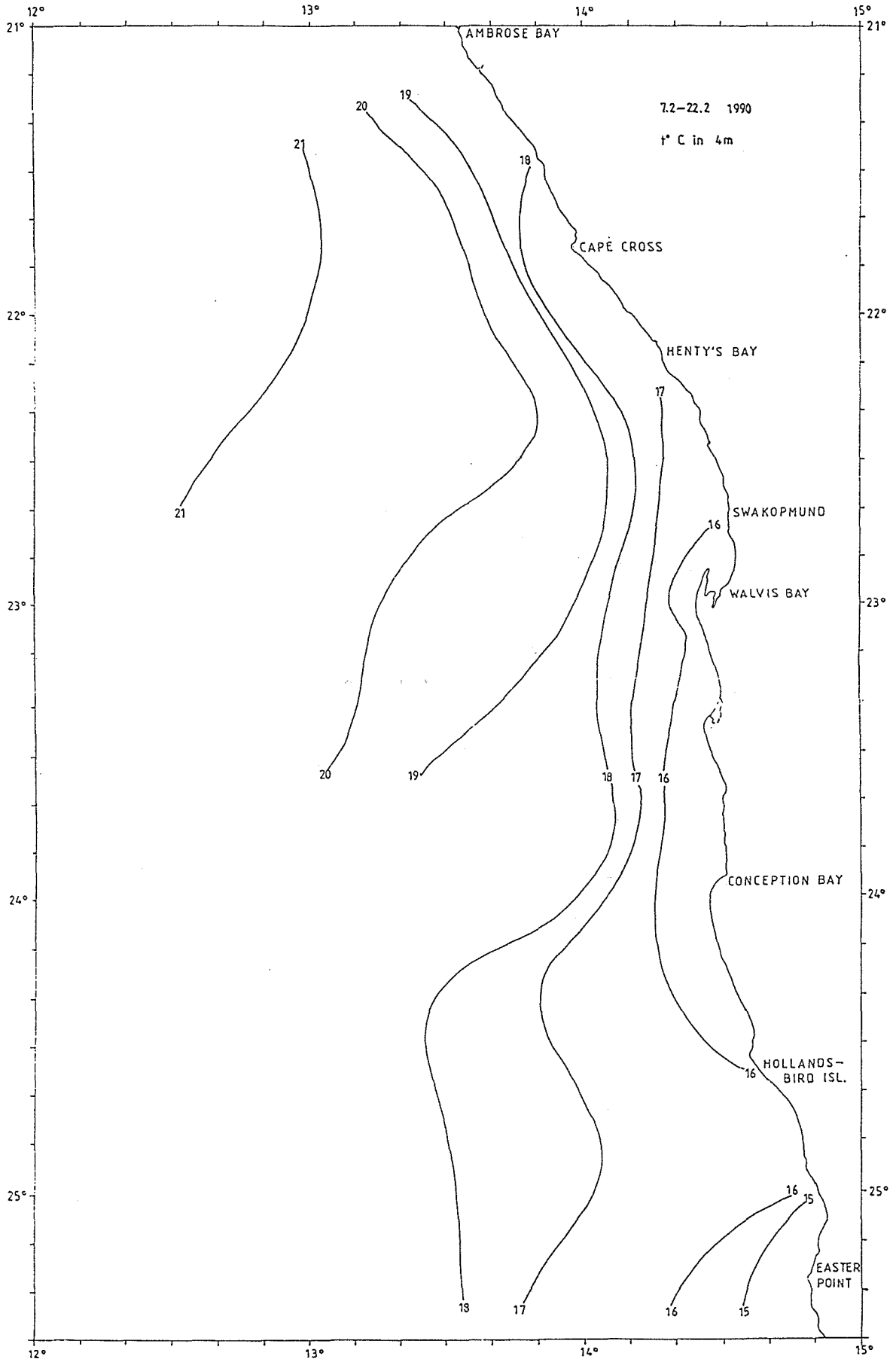


Figure 2b

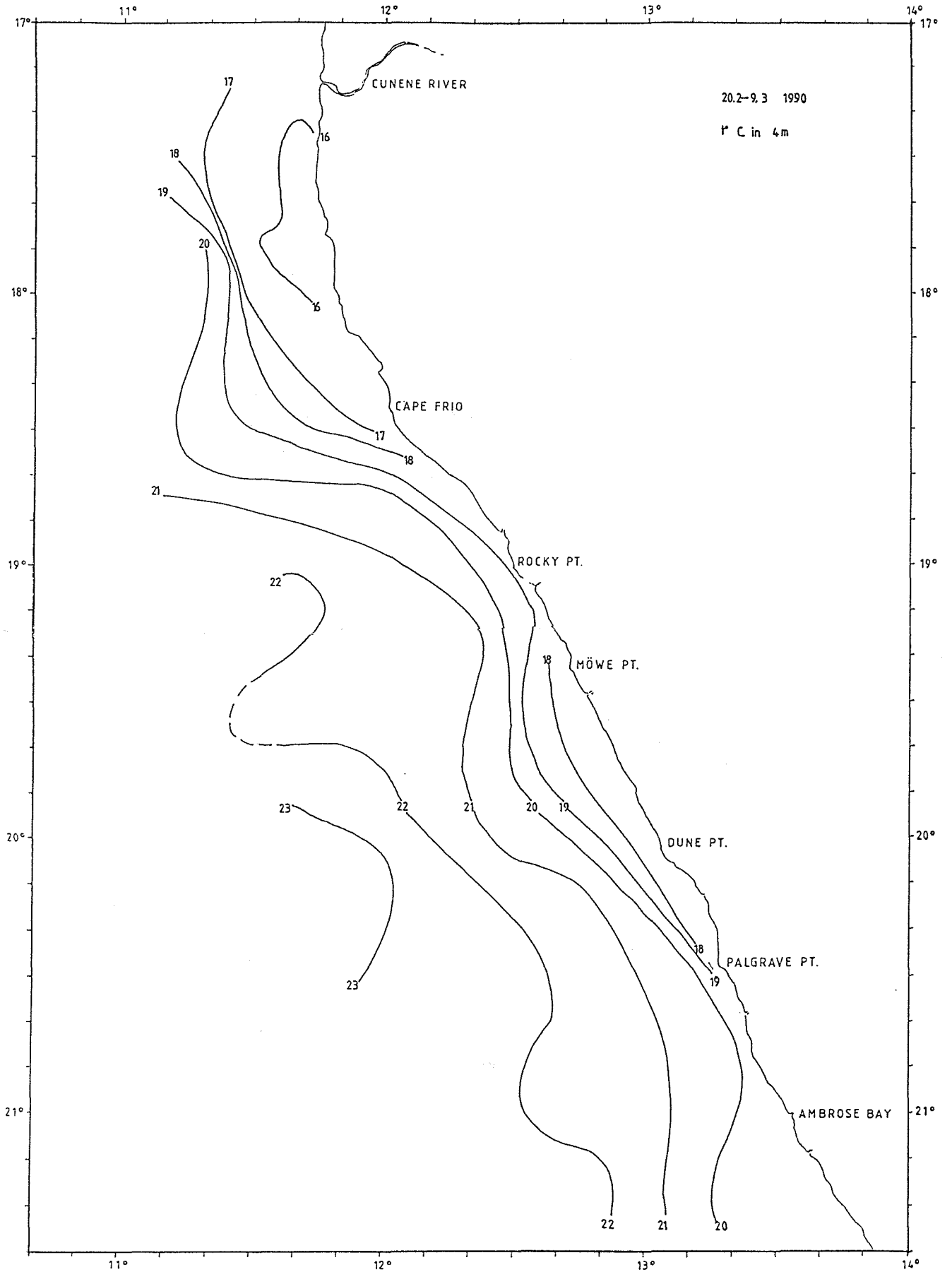


Figure 2c

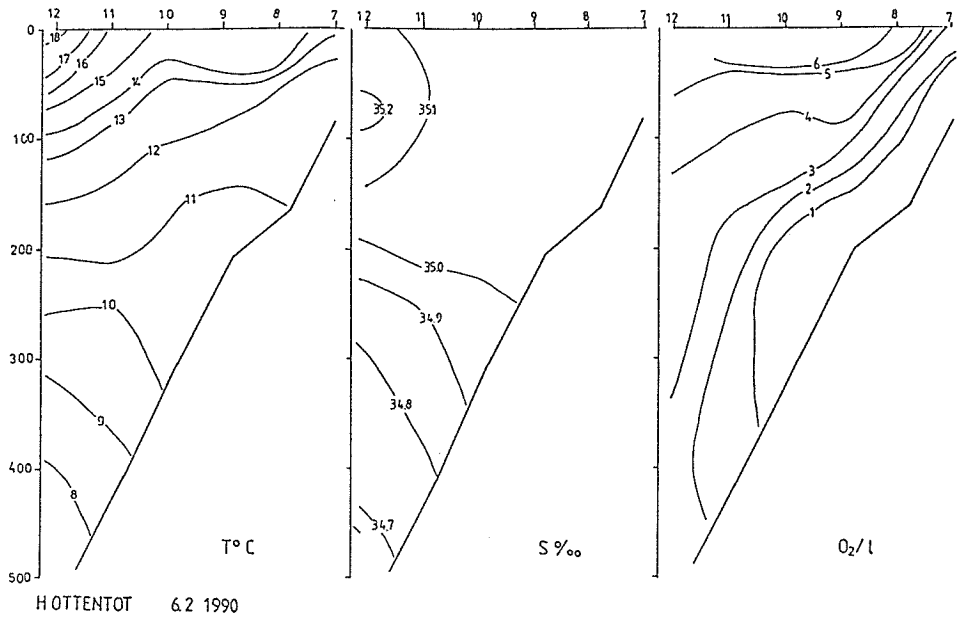


Figure 3. Hydrographic profiles. a: Orange River to St. Francis Bay, b: St. Francis Bay to Ambrose Bay, c: Ambrose Bay to Cunene River.

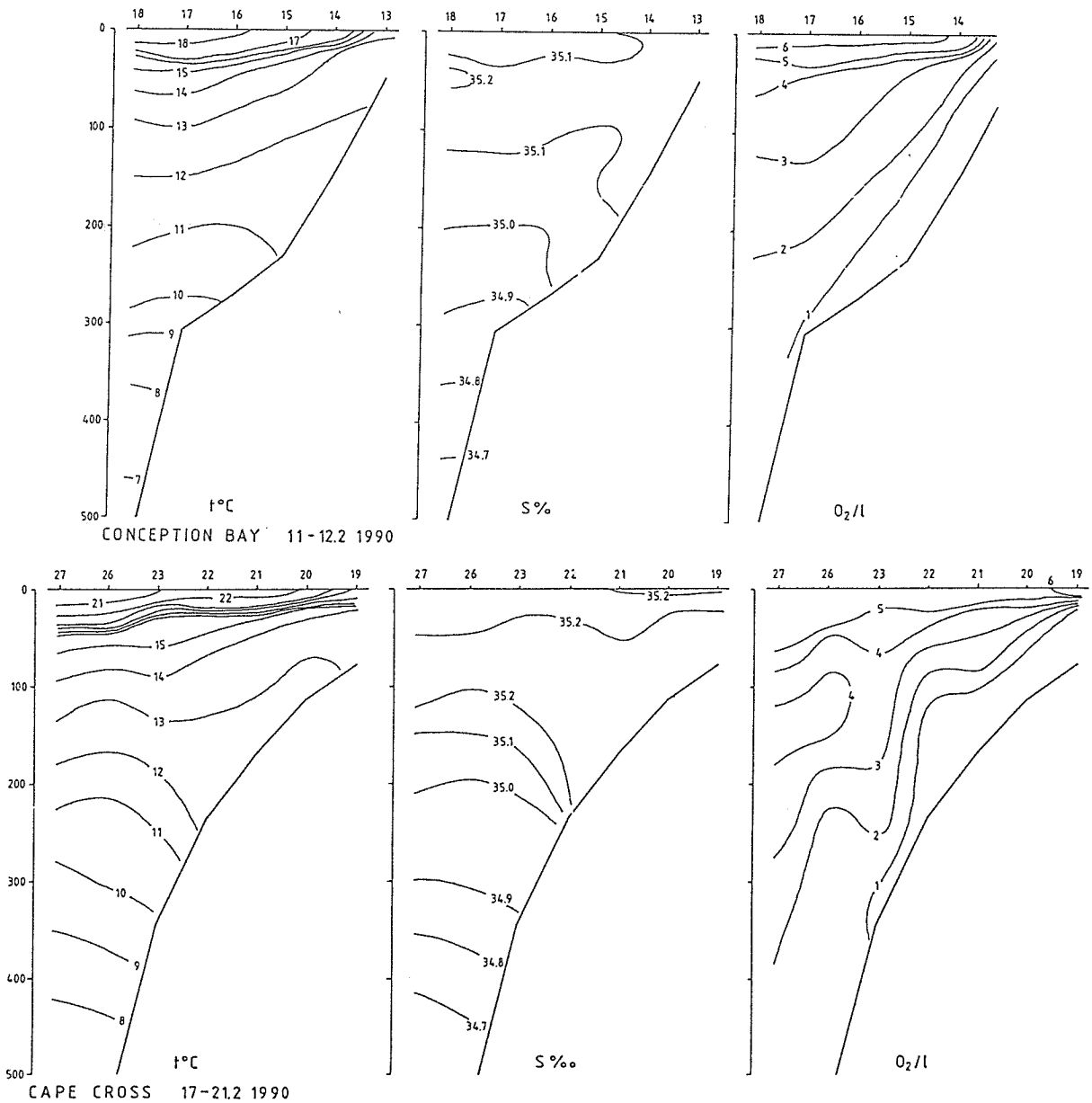


Figure 3b.

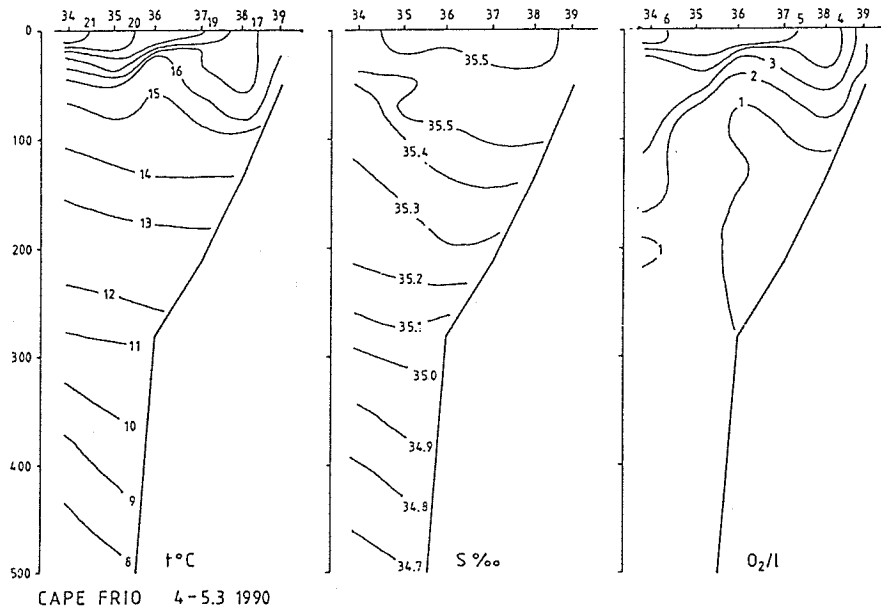
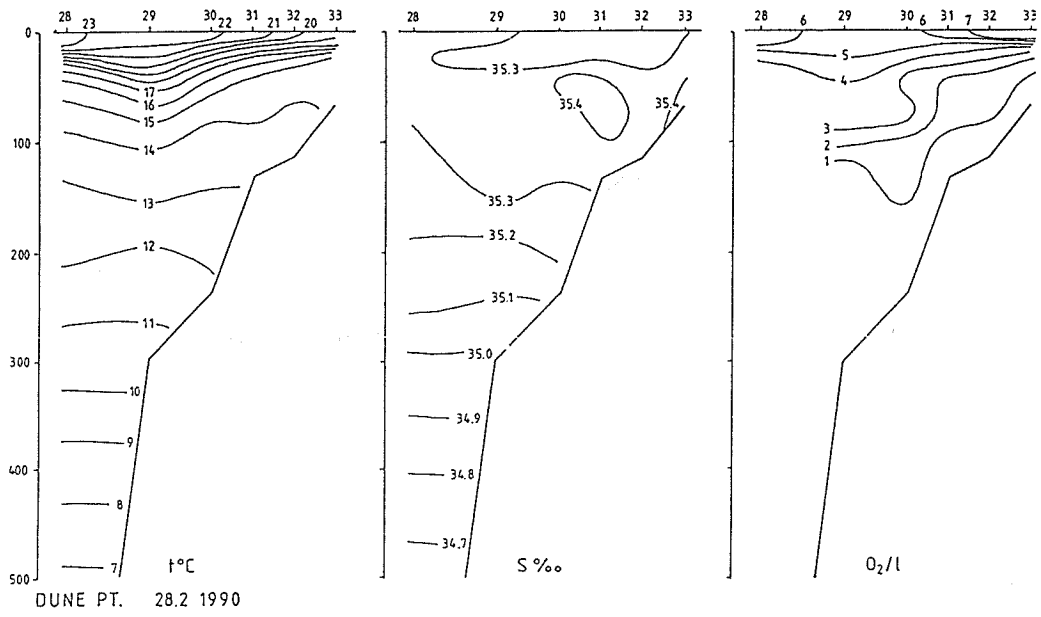


Figure 3c.

water is characterized by salinities of 35.5 ‰ and higher and as we see from the northernmost profiles of this survey, water of this salinity extended southwards towards 19 to 20°S by early March this year. This is similar to the situation in 1985 which was a year of limited intrusion (Boyd et al, 1987). But years of strong intrusion has maximum surface penetration in March-April such as occurred in 1984 with its Benguela type of "El Nino" and partly in 1986. Thus further data are needed to complete the description of the current oceanographical conditions of the Namibian Sea.

3. DISTRIBUTION AND ABUNDANCE OF PELAGIC FISH FROM THE ACOUSTIC OBSERVATION SYSTEM

The acoustic integration system provides observations of fish densities. The units of acoustic reflection used is $0.1 \times \text{m}^2/\text{nm}^2$ reflecting surface. The integrator values from fish targets are allocated to the following groups on the basis of trawl sampling and characteristic behaviour:

Pelagic fish type 1: clupeids and anchovies

Pelagic fish type 2: carangids, scombrids a.o.

Non-commercial pelagic fish: myctophids, gobies.

An arbitrary scale is used in the distribution charts to illustrate different levels of concentration.

3.1 Orange River to St. Francis Bay

Figure 4a shows the observed distribution of the pelagic fish types 1 and 2 which were only found in a few small areas and in generally low densities. The offshore patch near the southern border was identified as a mixture of southern rover, *Emmelichthys nitidus*, horse mackerel, snoek and chub mackerel. The inshore patch north of Panther Head was mainly round herring, *Etrumeus whiteheadi* with some pilchard and snoek. Identification of the small inshore aggregation off Easter Point was complicated by jellyfish, but the fish were probably pilchard and anchovy.

Various non-commercial pelagic fish were a source of extensive echo recordings over large parts of the shelf. Figure 4b shows the density distribution of such recordings which are believed mostly to refer to myctophids and the pelagic goby *Sufflogobius bibarbatus*. Myctophids were not as in many other areas limited to the outer parts of the shelf, but could some times be caught close inshore. The highest densities are, however, found over the slope and near the shelf edge. In the dense patch off Lüderitz, a 15 minute pelagic haul yielded about ten tons of myctophids. These species no doubt play an important role in the food chain. In addition to euphaucids which were also recorded and caught in quantities they must represent an important food source for the hakes.

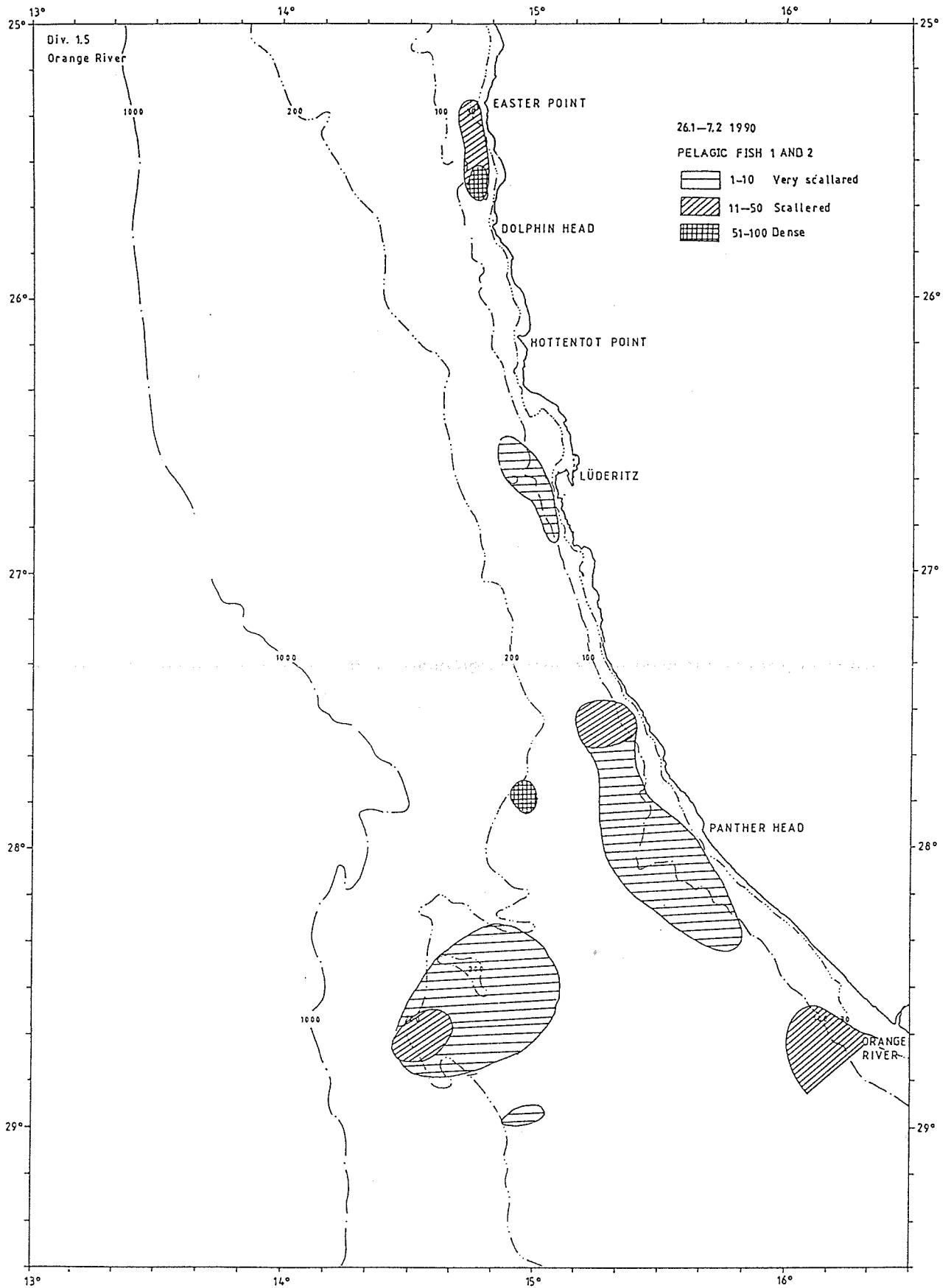


Figure 4. a: Distribution of pelagic fish types 1 and 2 , and b: distribution of non-commercial fish, myctophids and gobids, Orange River to St.Francis Bay.

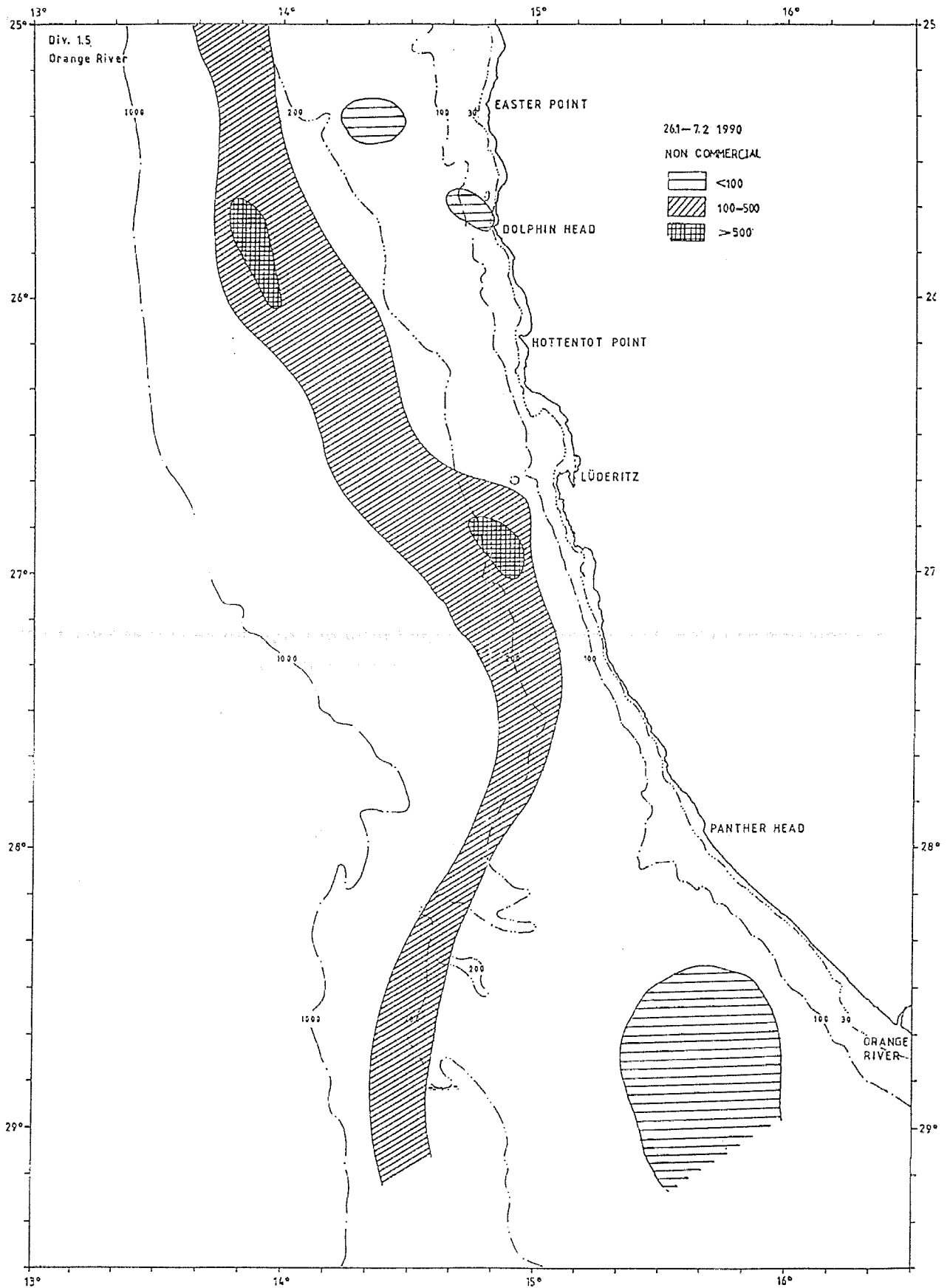


Figure 4b.

Jellyfish occurred in inshore waters in high densities especially from south of Lüderitz northwards. Densities seemed to increase shorewards as indicated by visual observations in the surface and by catches in the trawls. Catching of pelagic fish for identification and sampling in these areas was complicated since trawl hauls had to be limited to a few minutes towing time in order to avoid gear damage by the jellyfish.

3.2 St. Francis Bay to Ambrose Bay

High densities of jellyfish were encountered also in this area, creating problems for the sampling of pelagic fish with mid water trawl. The special mid water trawl was damaged by jellyfish catch and sampling was under such conditions attempted by 5-10 minute hauls with the bottom trawl equipped with floats. The high densities of jellyfish persisted up to about Cape Cross.

An inshore distribution consisting of schools and layers of anchovy, round herring and pilchard was located from Conception Bay northwards past Cape Cross, see figure 5a. These species were, however, not found in aggregations of high density in this area. Pilchards were identified in schools off Henty's Bay and Cape Cross, but appeared in small numbers in the catches in several locations. The size composition of the pilchard has a single mode around 20 cm and that of the anchovy a mode around 13 cm, see Annex I. Juveniles of these species were not found.

Schools of small Cape horse mackerel were found inshore from Hollands Bird Island northwards, see distribution map figure 5b. From about Walvis Bay on the Cape horse mackerel was also found over the middle and outer parts of the shelf. The size of the horse mackerel over this part of the shelf was closely related to the distance from shore, with only one modal size of abt 14 cm found out to a bottom depth of 100 m, two modal sizes of about 16 cm and 25 cm between 100 and 200 m depth and two groups of 26 cm and 38 cm over the outer shelf, see size compositions Annex I.

Small aggregations sometimes in the form of shoals of snoek was commonly found in the area.

3.3 Ambrose Bay to Cunene River

Figure 6a shows the distribution of anchovy and pilchard in this area. No heavy aggregations of either of these species were located. Small school areas of pilchard were found between Ambrose Bay and Dune Point with a few small patches up towards Cape Frio. The pilchards were typically found in single large schools between 30 m and 90 m bottom depth, and usually only one or two schools contributed to a 5 nm reading, often with several zero readings before and after. It is clear that this very discrete distribution pattern complicates an assessment with the acoustic method, especially when the abundance is low. Precision of the estimate will suffer from such a school pattern, and have to be compensated with much higher sampling intensity. Periods when the pilchard form smaller schools or more scattered distributions will give more precise estimates.

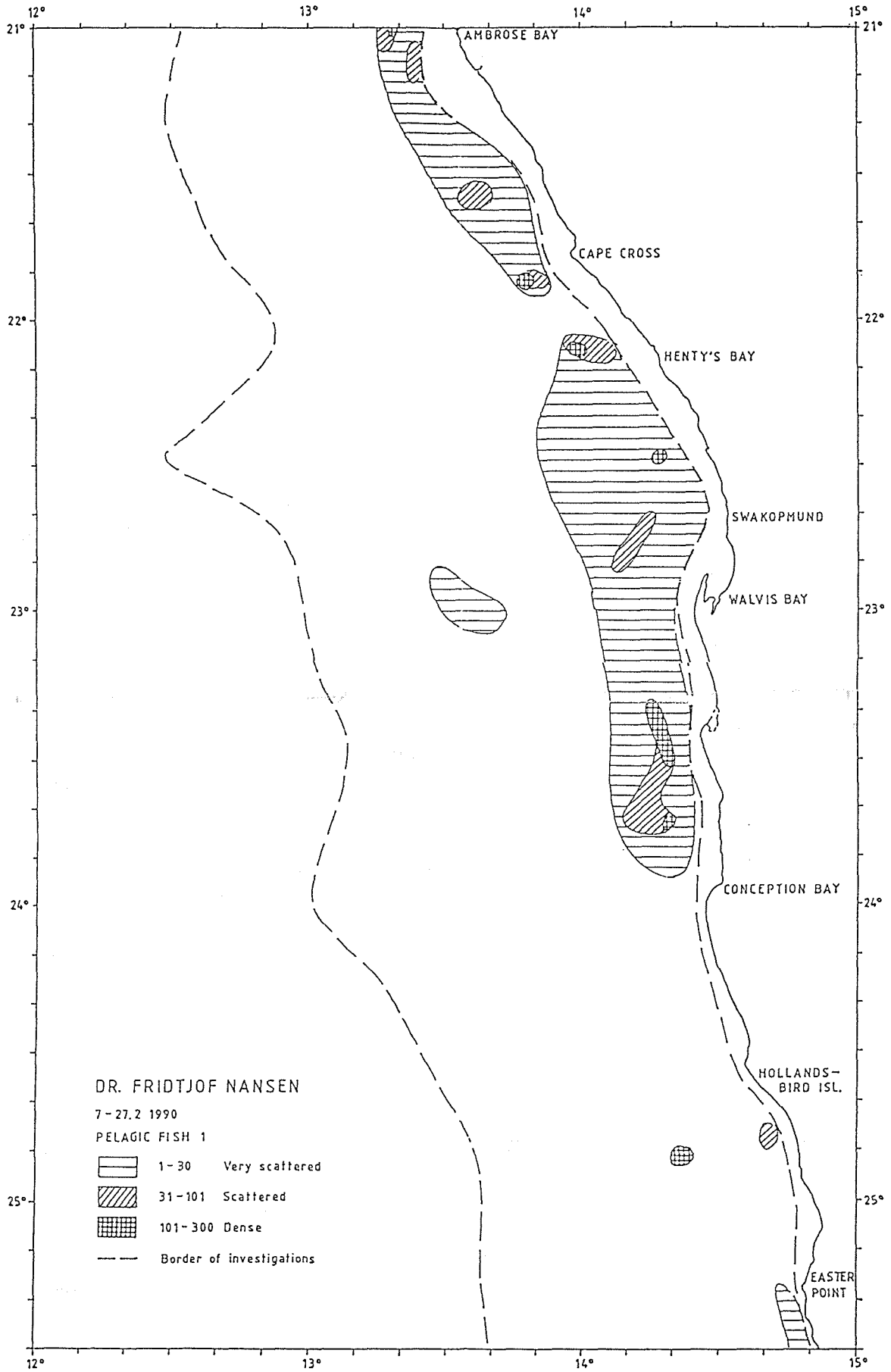


Figure 5. a: Distribution of pelagic fish type 1 and b: distribution of pelagic fish type 2, St. Francis Bay to Ambrose Bay.

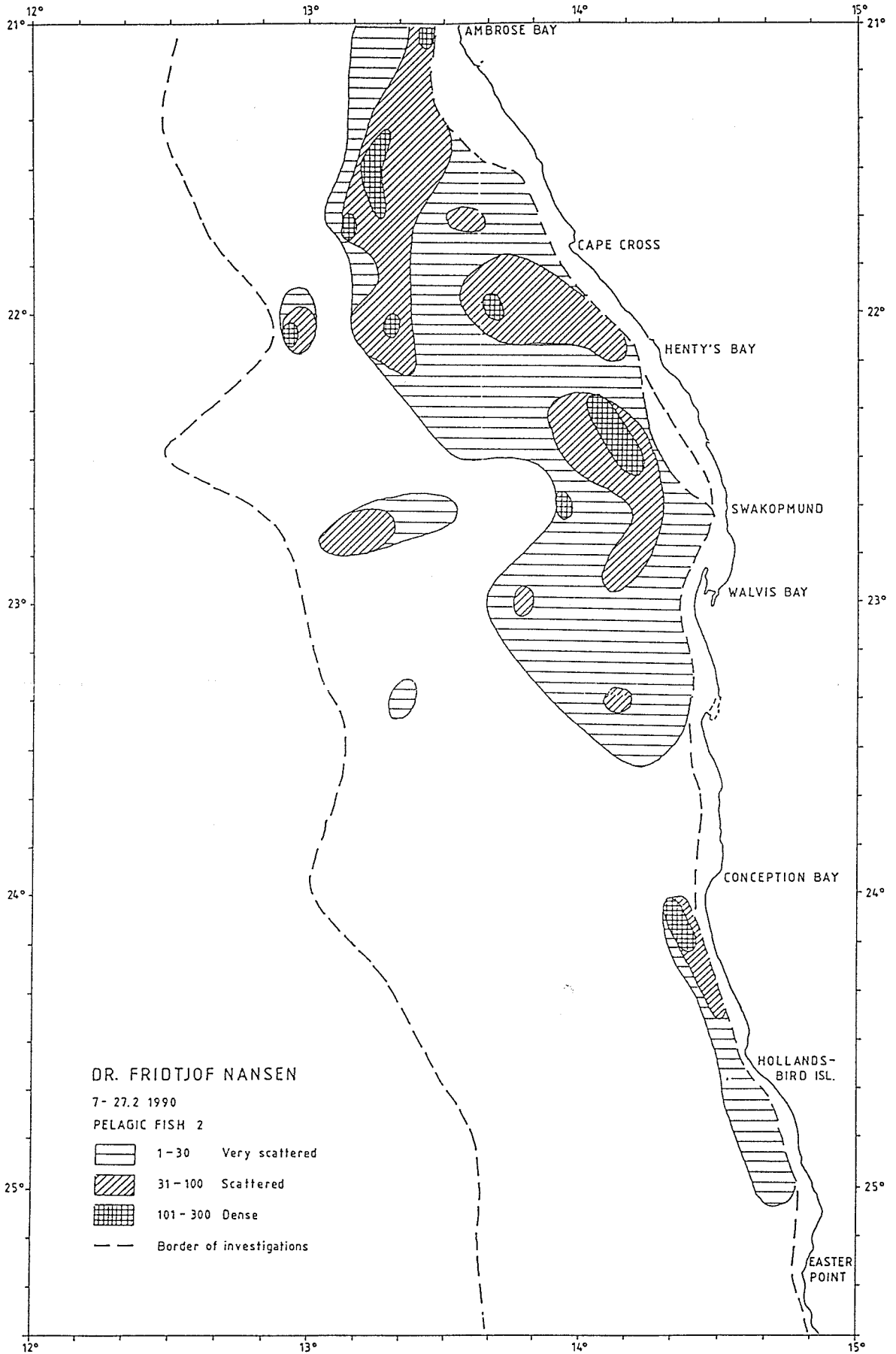


Figure 5b.

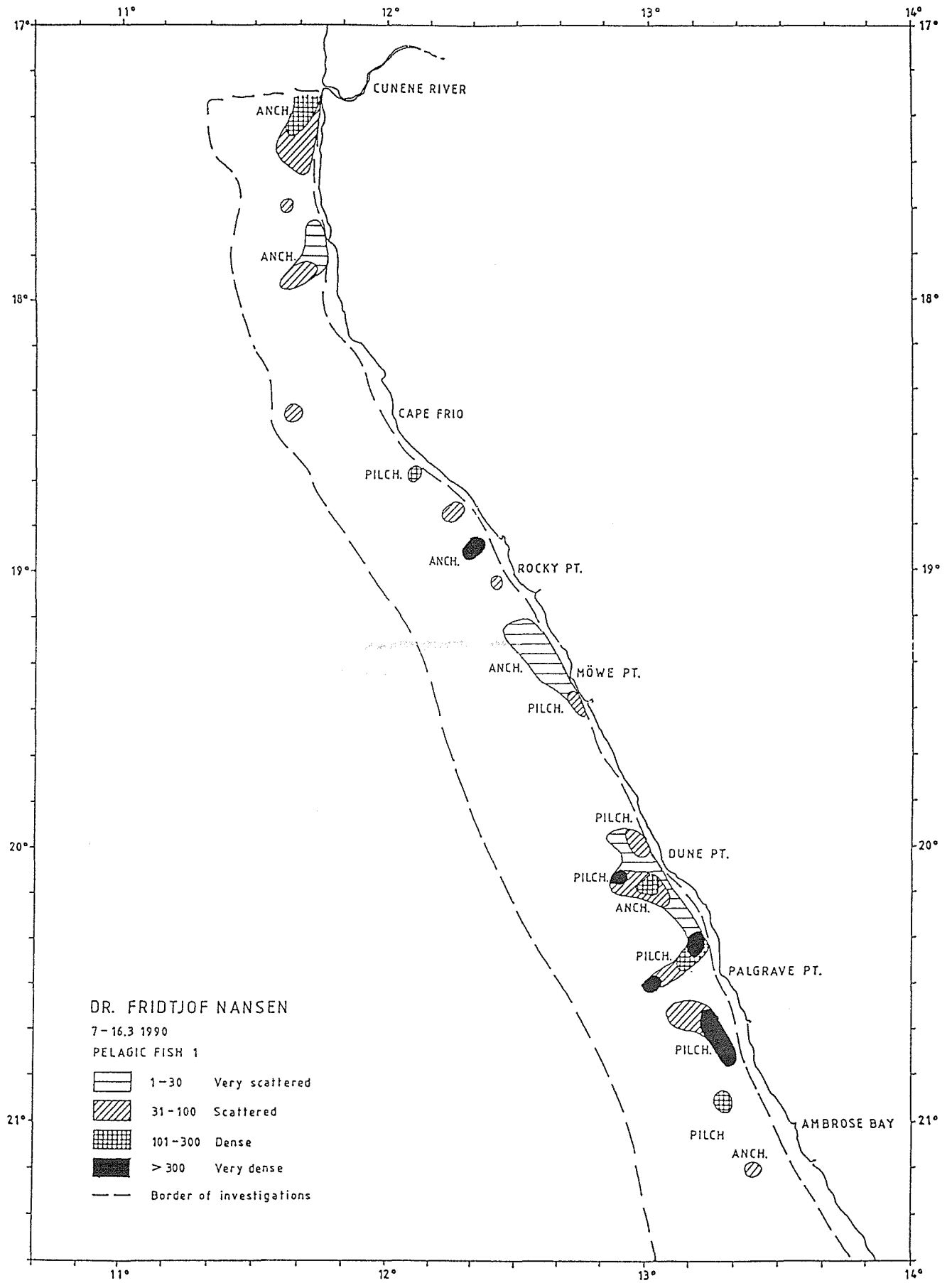


Figure 6. a: Distribution of pelagic fish type 1 and b: distribution of pelagic fish type 2, Ambrose Bay to Cunene River.

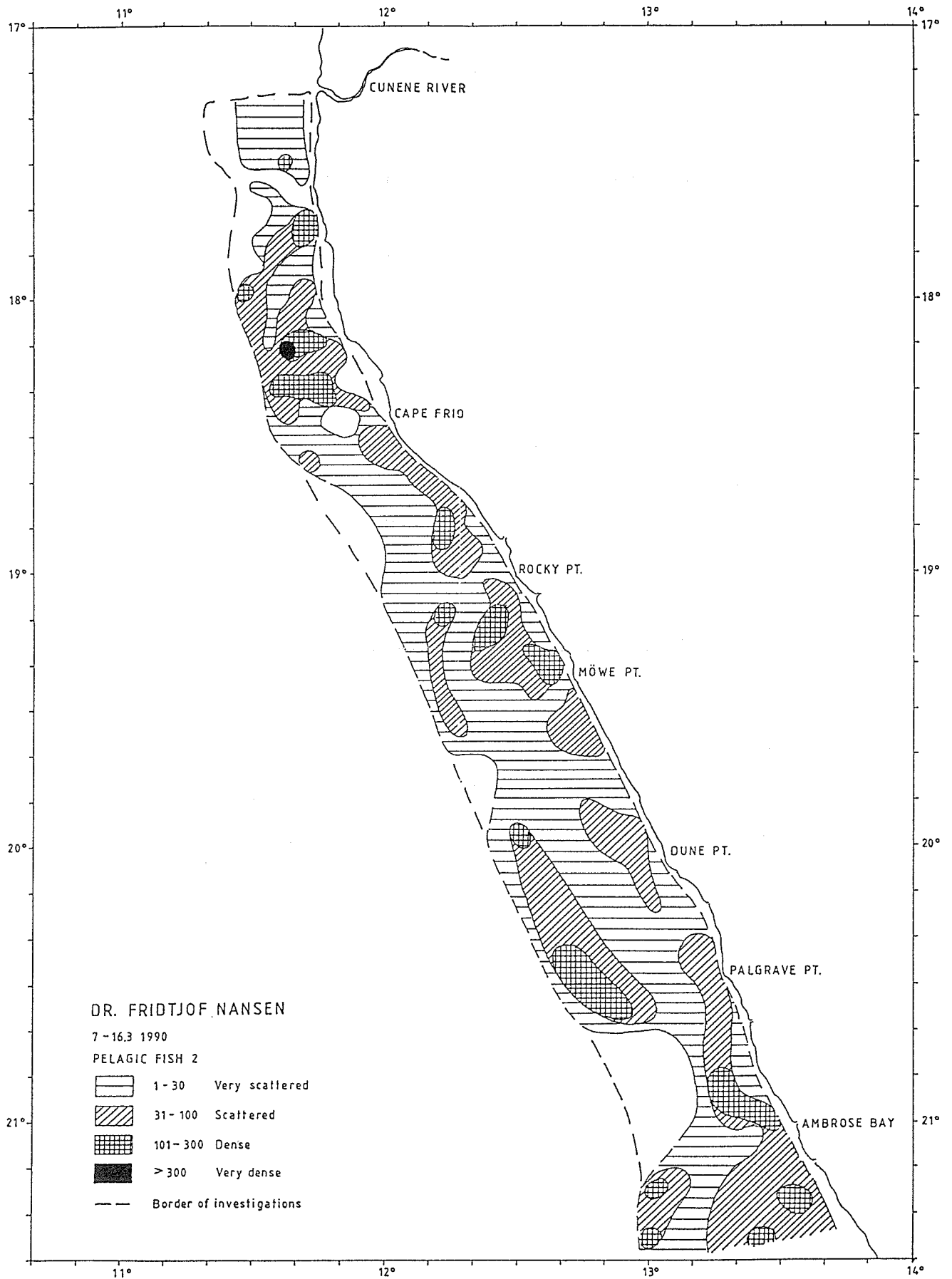


Figure 6b.

The anchovy appeared in very limited separate areas up to the Cunene River.

Also in this area the pilchard was represented by only one modal group, but with the slightly lower modal size than further south, see Annex I. The size of the anchovy was similar to that of the southern area.

The area was clearly dominated by the Cape horse mackerel, the main species from about 200 m shelf depth to about 50 m, sometimes as shallow as 20 m, see distribution chart figure 6b. There was a greater domination in this area of the small sized horse mackerel with a mode of about 15 cm, but some increase of size with bottom depth was evident also here, see size distributions, Annex I.

3.4 Biomass estimates of small pelagic fish

The estimates are based on the acoustic integration technique which has also been used in similar previous assessments of the same stocks. The survey coverage was assessed as being ample with several coverages of main areas, an important measure in view of the behaviour of the pilchard in appearing in large and dispersed schools. The North Sea herring target strength relations ($TS=20 \log l - 71.2$) was used for pilchard and anchovy. The target strength used in the horse mackerel estimate is discussed below.

Pilchard and anchovy

The biomass estimates for these two stocks are shown in Table 2.

Recent estimates of the pilchard stock reported by the Sea Fisheries Research Institute of South Africa were 60 000 t in July 1989 and 120 000 t in 1988. The present findings of 235 000 t is thought to lie within the limits of variance of estimates of stock size at this low level of abundance and does not represent evidence of a recovery of the stock.

The anchovy stock was estimated at 175 000 t in July 1989 and no significant increase of the stock can thus be reported with our estimate of 215 000 t, as this also includes some round herring.

	St. Francis Bay- Ambrose Bay	Ambrose Bay- Cunene River	Total
Anchovy	125 000	90 000	215 000
Pilchard	75 000	160 000	235 000

Horse mackerel

For converting the acoustic observations of fish echoes into biomass information on the acoustic properties of the species in question is required. As mentioned above it is assumed that for pilchard and anchovy these properties are similar to those of the better studied herring. Studies of the shape and size of the swim bladder (the source of about 95% of the reflection) of these species seems to corroborate this assumption. The relative size of the swim bladder of the horse mackerel is, however, significantly smaller than that of the clupeoids. A study of this subject (Svellingen, 1989, in manuscript) indicate that the resulting effect would be a nominal target strength nearly 3 dB lower than that used for the North Sea herring. Further investigations of this subject will be given priority, but in the meantime we feel that the uncertainty should be indicated by presentation of the range of biomass corresponding to the two values of target strength. Table 3 shows the estimates by areas.

Table 3. Biomass estimates of Cape horse mackerel by areas. Range corresponds to different assumptions regarding target strength. (1 000 tons).		
St. Francis Bay - Ambrose Bay	Ambrose Bay - Cunene River	Total area
660 - 1 200	780 - 1 500	1 400 - 2 700

The size compositions showed a difference between the areas with a higher representation of the older age groups in the southern area. A size composition for the total stock has been estimated, see Annex I. Based on this composition one may conclude that the juvenile fish of size below 19 cm (the 1+ group) represent about 65% of the stock by numbers. After conversion to weight one finds, however, that fish larger than 18 cm represent about 80% of the total biomass.

4. RESULTS OF THE FISHING EXPERIMENTS, CATCH COMPOSITIONS AND SWEEP AREA BIOMASS ESTIMATES OF DEMERSAL FISH

Some of the results of the fishing experiments are commented on below. One should note, however, that most of the fishing forms part of a programme for "swept area" biomass estimation, and for this purpose the trawl stations are positioned in advance more or less randomly and with no intention of obtaining high catch rates. The catch rates thus do not simulate those of a commercial fishery.

All catches were sampled for composition in weight and numbers by species, and size sampling was made of important species using total length. The complete records of fishing stations are shown in Annex II.

4.1 Orange River to St. Francis Bay

Compositions of catches

To show changes by depth the catches from the shelf down to 250 m of depth are analysed separately from those of the slope 250- 500 m. Table 4 shows the catch rates standardized to kg/hour by main groups in both mid water - and bottom hauls from the shelf and the slope hauls separately. Hakes form the main part of the catches and the two species will be analysed separately below.

Table 4. Orange River to St. Francis Bay. Catch rates by main groups in pelagic and bottom trawl hauls standardized to kg/hour for the shelf- and the slope hauls.

SHELF

ST.NO.	DEP.	Pelagic	Hakes	Other dem.	Squid	Sharks	Other
2	165		904.4				42.1
4	76	12.0	8036.0				
5	113	10.3	1314.5	10.9		63.8	67.1
6	144		747.6	2.6	12.4		62.8
7	172	13.5	183.0	1.4	26.6		186.6
8	180	60.0	142.8	1.8	47.3	0.8	86.3
9	182	84.4	51.8	0.4	34.2	2.4	106.2
13	213	35.8	65.8	30.8	28.0		6.2
14	178	27.6	206.2	0.6	19.2	38.6	32.6
16	186	4.6	236.0	8.5	53.1	3.8	91.2
17	5	17.0	4.6		19.2		38.5
18	109		2214.0				101.2
19	142	15.4	76.8	0.9	4.6	108.0	321.8
20	175	11.6	162.4	14.4	6.3	132.3	103.7
21	181	137.1	84.2		21.6	126.6	20.7
22	174	374.2	135.0	150.0	26.3		335.5
24	167	31.4	109.4	6.0	28.4	24.0	16.3
25	198	10.8	30.0	0.4	19.2	5.3	36.0
26	188	14.4	22.2	1.4	27.5		129.6
27	190	1320.8	170.8	1430.0	0.8	2.4	126.1
29	186	619.0	180.0				141.9
30	86		39.6				16.5
31	127	0.6	46.8		4.2	32.2	48.6
32	95	5.2	64.0	0.0	0.4	34.0	1.5
33	5	1230.6			0.4	81.4	5.8
36	239		831.6		19.4	7.0	30.0
37	184		1736.0		24.8		10.4
39	105						
41	70	134.4					40000.0
43	133		2.4				16.8
44	164		70.4				4.4
45	201		27.8				1.4
53	211		114.5				60.0
58	197		529.2				80.3
61	5						288.0
62	201		726.4				
69	203		1361.4				59.8
MEAN		112.7	557.7	44.8	11.4	18.0	1153.2

SLOPE

ST.NO.	DEP.	Pelagic	Hakes	Other dem.	Squid	Sharks	Other
10	400		14.2				56.9
11	302	2.3	98.0	7.1	4.0	2.5	29.0
12	418		174.5	11.6	1.6		32.3
23	333		26.1	34.2			115.6
28	300		134.6	3.0		4.0	18.6
34	303	0.5	99.0	11.0	12.9	2.2	19.9
35	372		1017.7	5.1	17.0		153.3
38	284		365.2	52.6	86.2		102.3
40	309		189.0	2.4			163.1
46	322		131.1	45.2			35.2
47	375		375.9		9.4		12.7
48	514		39.6	5.1	20.4	82.2	10.8
49	510		40.5		15.0	9.4	43.4
50	403		124.6		16.8		62.0
51	350		121.2		21.6		28.8
52	299		134.0				82.2
54	410		99.4		2.0	1.8	130.4
55	361		30.0	12.2	20.8	0.6	41.2
56	266		128.4	1.0	0.8		8.7
57	450		15.0		54.6	3.4	43.7
63	297		593.0		78.0		267.2
64	350		58.0		36.0	4.8	34.8
65	420		46.0		30.0	1.2	42.0
66	399		19.6		31.0	19.2	37.2
67	298	50.0	241.8		18.0		104.1
68	255	2.0	492.8		20.9		154.4
MEAN		2.1	185.7	7.3	19.1	5.0	70.4

The broad shelf south of 27°30'S seems to have faunistic components different from that further north. Pelagic fish formed part of many of the bottom trawl catches and consisted of a number of forms. The clupeids were nearly exclusively round herring *Etrumeus whiteheadi* with a few pilchards, and the carangids were horse mackerel *Trachurus capensis*. The southern rover *Emmelichthys nitidus* was caught at about 100 fathoms of depth as was also the main part of the hairtails. Snoek was a minor by-catch over wide parts of the main shelf.

John dory *Zeus faber* gave some high catch rates, up to 1 400 kg/hour in the bottom trawl. Kingklip *Genypterus capensis* was also important among the demersal species other than hakes with catch rates up to 50 kg/hour and a main distribution between 200 and 400 m. Catches of monk *Lophius upsicephalus* were fewer and smaller, only one ranging above 10 kg/hour.

The squids consisted of two species, the small sized southern cuttlefish *Sepia australis* appearing in small quantities in the shelf catches and the flying squid *Todarodes sagittatus* with high incidence as a by-catch in the slope with mean catch rates of 15-20 kg/hour down to 500 m.

Pooled length distributions of samples of the main species are shown in Annex I.

The hakes

The two species Cape hake *Merluccius capensis* and deep water hake *Merluccius paradoxus* appeared to be well separated in their depth distribution at about 300 m of depth, see Table 5 which shows the mean densities by depth ranges and the corresponding mean catch rates with the type of trawl used by the vessel. The density of the Cape hake is more than three times higher over the shelf than in the upper slope, while the deep water hake has its highest density in the 350-450 m range with quite low densities above and below this range. The three highest catch rates for the Cape hake were: 8.8, 2.2 and 1.7 tons/hour, while those for the deep water hake were 1.0, 0.38 and 0.13 tons/hour.

	100-250m	250-350m	350-450m	450-550
Cape hake				
Density	21.9	4.3		
Catch rate	660	130		
Precision (%)	88	91		
No of hauls	29	12		
Deep w. hake				
Density		1.4	5.0	1.2
Catch rate		40	150	35
Precision (%)				

When plotted in a chart the observations of densities by fishing stations of Cape hake fall into a pattern of levels which reflect the distribution of this species over the shelf, see figure 7. South of Lüderitz the shorewards limit of the distribution was close to the 100 m depth line at some 10 nm off the coast, while northwards the hake was located

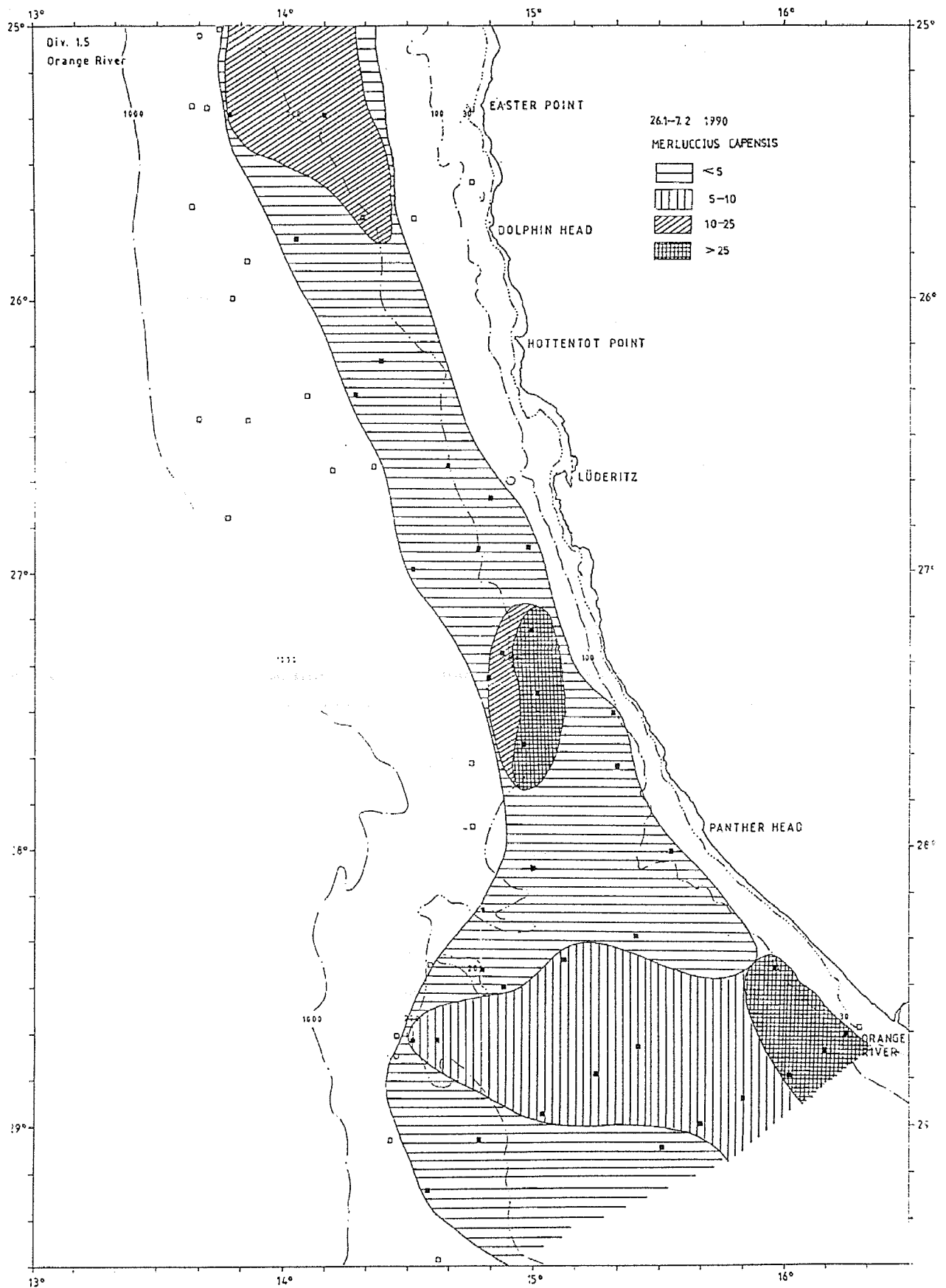


Figure 7. Distribution of Cape hake, Orange River to St. Francis Bay. Density strata based on catch rates at fishing stations. Tons/nm².

further offshore. This shift could be related to increasing densities of jellyfish in inshore waters towards the north. Patches of high density were found over the mid- and inshore shelf in the south, but over wider, more offshore parts in the north.

For the deep water hake there is an indication of a decline of density along the slope northwards from a mean of 4.8 t/nm^2 for the area south of Lüderitz to 2.5 t/nm^2 in the northern part.

There is a well known depth dependence of the size composition of hakes and pooled size compositions of samples of Cape hake catches from the shelf down to 250 m of depth and from the slope beyond 250 m are shown in Annex I. The trawl used is fine-meshed and is likely to give representative distributions below 20 cm of fish length. The modal group around 10 cm of length was only occasionally caught and was sometimes found in dense aggregations in mid water during day time. This group, probably 1+ by age was thus not available for the survey. The modal group of 24-25 cm, probably the age group 2+, seems to have been fully available and was, as shown in Annex I, not only present and the dominating group over the shelf down to 250 m, but was also partly available in the slope below 250 m. Protection of small sized young hake in the 20 cm length class is thus not possible through area closures.

An approximate estimate of the size composition of the total stock of Cape hake in Div. 1.5 can be obtained by combining the two size compositions weighted by the fish biomass of the strata. This is shown as "Total stock" in Annex I. Only part of this will be available for commercial fishing with an effective trawl mesh size of 110 mm. Assuming a selection factor of 3.3 for the hake and a range of 20 cm between the 10% and the 90% retention lengths as deduced from Ivanova et al (1989), a selection curve has been applied to the length distribution of the stock and its equivalent weight distribution. The fishable part of the stock would according to this estimate be about 15% by numbers and 52% by weight.

If a series of historical data from surveys with small meshed sampling trawls were available, the abundance of the modal size group in the 20 cm range, the 2+ group could be used as a measure of strength of the incoming recruitment to the stock of Cape hake. Several nations have undertaken trawl surveys of the hake grounds off Namibia, but a direct comparison with our findings proves difficult since the fishing gear and methods have differed from that used in the present survey. The survey programme of the Sea Fisheries Research Institute of South Africa covers Div. 1.6 immediately south of Div. 1.5. A considerable increase in the abundance of 1 and 2 year olds, as compared to observations since 1984, were reported from the northern part of Div. 1.6 from their survey in July 1989 (Augustyn et al, 1989). The stocks in these parts must be closely related. The Spanish surveys which cover the area from the Orange River to Walvis Bay also reports relatively high numbers of the 1 and 2 groups as compared with the two preceding years from their coverages in January and July 1989 (Gordoa and Macpherson, 1989).

Although there is thus, for the time being no strict basis for evaluating the recruitment to the stock, there are some grounds for stating that it seems likely that the relatively high abundance of the 2+ group observed in this survey, indicates a recruitment which is higher than in the previous, at least two years. Until further more precise information

becomes available one can at least conclude that if protected from fishing by improved management the present 2+ group can contribute to some recovery of the adult stock.

A change of size composition with depth was also observed for the deep sea hake see Annex I, which shows the size compositions down to and below 350 m, but it was less marked than in the other species. There is less small sized fish present. Assuming as above, an effective mesh size of 110 mm, 40% by numbers and 60% by weight would be available as the fishable stock.

The prelocated trawl stations which are distributed in a semi random way to cover the various depth zones in which the hakes are found, can be used for estimates of the total biomass of the stocks. The assumptions used here for these calculations are: a catchability coefficient $q = 1$ i.e. all fish in the path of the trawl between the wings are caught, and the effective wing spread = 18 m (1/100 of a nautical mile). 60 successful hauls were made for this purpose in the area.

For the Cape hake the data can be used in two different ways based on analysis of the distribution by area and of densities by depth strata. For the first, the mean densities of the patches and strata of distribution shown in figure 7 are related to their extension by area and an integration made. In the second method the mean densities by depth strata as shown in Table 5 above are related to the estimates of extension of these strata recorded in Table 1. The results are shown in Table 6.

Table 6. Estimates of biomass of hakes, Orange River to St. Francis Bay. Tons.					
Cape hake from distribution chart	120 000 - 140 000				
From density by depth strata:					
	100-250m	250-350m	350-450m	450-550m	Total
Cape hake	247 000	14 000			261 000
Deep sea hake		4 500	15 000	2 500	22 000

The range in the estimates from the distribution charts relate to the somewhat subjective way in which the delimitations of the denser aggregations may be made.

As shown above, only 52% of the Cape hake and 60% of the deep sea hake represent the fishable component of the stocks. Our estimate for the fishable biomass of hake in the area from the Orange River to St. Francis Bay is thus about 135 000 t for the Cape stock when using the depth stratified data and 68 000 t when using the post stratified data from the distribution chart. Because of the patchy distribution of the Cape hake over the shelf, it is thought that the method which takes this patchiness into account will be more reliable. For the deep water stock the fishable part is 13 000 t. Our best estimate of the fishable part of the biomass of hake in Div. 1.5 is thus 80 000 t.

4.2 St. Francis Bay to Ambrose Bay

Composition of catches

Table 7 shows the catch rates standardized to kg/hour by main groups in both mid water and bottom hauls from the shelf and the slope hauls separately. Hakes form the main part of the catches and the two species will be analysed separately below.

Cape horse mackerel formed the main part of the catch of pelagic fish in this area. This species also appeared in the bottom trawl catches, especially in the slope at 250-350 m depth. Only low catches were made of demersal fish other than hake. Kingklip did not appear in this area. Catches of monk averaged 3 kg/hour in 21 hauls and West Coast sole 11 kg/hour in 7 hauls. The squids consisted almost exclusively of flying squid *Todarodes sagittatus* with highest catch rates averaging about 35 kg/hour in the 300-500 m range. The mean size of the squid at these depths approached 0.5 kg.

The hakes

The mean density of Cape hake was higher in this area than in Div. 1.5 while that of the deep water hake was considerably lower, see Table 8. The two species are well separated by depth distribution. The three highest catch rates for Cape hake were 6.5, 3.1 and 2.6 tons/hour while those for deep water hake were 180, 130, and 90 kg/hour.

The plots of catch rates for the Cape hake give a density distribution as shown in figure 8. The shoreward limit of distribution is sharp and seemed to be related to the occurrence of soft muddy bottom, but increasing densities of jellyfish were also observed towards the shore. The belt of high densities over the mid shelf was a consistent finding.

The size distributions based on a large number of samples pooled are shown by depth ranges for the two species in Annex I. The 1+ group of Cape hake was also in this area found in dense aggregations in mid water in several locations and this group appeared only occasionally in the swept area hauls. The 2+ group dominate the high density aggregations on the shelf and is also represented in the deep grounds. Also for this area an estimate of the size composition of the total stock has been made by adjusting for the size related depth distribution. Weighting by total biomass in the two depth strata gives the compositions shown as total stock in Annex I. The deep water hake is represented by fish of larger size than in Div. 1.5.

The size composition for the total stock of Cape hake in this area with the high dominance of the 2+ group is very similar to that found in the southern area, Orange River to St. Francis Bay. Also for the northern stock of Cape hake (Div. 1.3 +1.4) there has been a decline of stock biomass and recruitment over several years, but the Spanish survey programme referred to above reported some increase of recruitment in 1989. It seems reasonable to draw a similar provisional conclusion regarding recruitment in this area as that discussed for Div. 1.5 above: the indications are that the recruitment is better than in the recent few years and if protected by improved management the 2+ group will contribute to some recovery of the adult stock.

Table 7. St. Francis Bay to Ambrose Bay. Catch rates by main groups in pelagic and bottom trawl hauls standardized to kg/hour for the shelf and the slope hauls.

SHELF

ST.NO.	DEP.	Pelagic	Hakes	Other dem.	Squid	Sharks	Other
73	223		264.0		6.4		152.0
81	203		997.2				45.0
82	5	360.0					
83	110		1.3			2.8	51.6
84	159	210.6	1026.4				
85	201		6500.0				
86	243		217.4		22.4		83.6
94	227	108.4	152.8	3.6	4.0	1.6	67.2
95	184		934.8	18.6			20.4
96	164	5.0	1488.0				
97	5	116.5					
98	5	89.1					
99	111						
100	156		1127.1				78.0
101	174	4.0	252.0	10.2	4.2		76.4
102	221	220.2	53.6	1.2	4.0	1.2	34.8
109	147	1042.6	1133.4			18.6	5.4
110	141		3110.4	33.6			
111	133		691.2	10.8		4.2	
112	5	215.2					
113	5	177.4					
114	5	102.6					
115	112						
116	128		160.3				14.0
117	134		510.4				17.6
118	103		778.6	6.8			34.0
119	244	174.2	418.6	1.2	4.8		0.9
121	10	148.4	2.2				
122	10	208.8					
126	196	7.8	542.4	1.8			
127	139		1846.8				
128	126		1393.2				
129	10	235.4					
130	10	115.7					
131	10	83.0					
132	5	258.4					
133	5	269.0					
134	136		88.4				8.0
135	189	321.0	2613.0				30.0
137	10	363.2					
142	5	672.0					
144	220	3.8	57.6				2.5
145	192		115.8				1.5
146	60	41.6				0.50	
147	147		1740.8				
148	112	5.6					153.6
149	50						
150	5	37.2					3.6
151	5	72.0					
152	5						
153	5	1.8					
154	106		0.4				7.0
155	5	475.5					
156	125		34.8				117.6
157	164		151.2				19.2
163	142	1950.0	6645.2	3.6			2.4
164	5	80.5					
165	5	159.8					
166	5	72.0					
167	5						
168	5	80.0					
MEAN		139.1	574.5	1.5	0.7	0.4	16.8

SLOPE

ST.NO.	DEP.	Pelagic	Hakes	Other dem.	Squid	Sharks	Other
74	272		29.4		5.0		43.0
75	352	9.0	68.4	3.4	4.0	11.2	40.2
76	450		34.9	0.5	44.5	9.6	41.5
78	382		46.0		42.4	61.2	33.0
79	302		315.8		7.0		124.0
80	251		142.0	6.0	5.7		60.0
87	279	10.8	287.7		13.3	1.0	81.5
88	302	8.0	85.4		3.0	4.8	22.4
89	450		59.6	1.0	46.4	49.4	169.2
90	5						279.2
91	502	1.4	14.6	5.7	10.8	197.2	106.6
92	375		180.6	9.2	58.3	25.4	94.7
93	271	89.4	164.0	3.0		4.0	43.0
103	322	64.2	115.2		10.4	1.0	428.0
104	415		14.8	1.8	18.8	16.9	71.5
105	503		11.0		6.6	10.9	51.9
106	487		65.8	4.0	32.0		110.4
107	353		31.4	0.9	29.0	8.5	24.0
108	252	1339.2	52.8				
120	292	26.6	67.2		4.2		12.4
123	432		8.5		10.8	9.2	103.8
124	299	105.6	240.6	1.9	24.0	2.4	63.2
125	260	92.0	103.2		2.4	10.8	6.6
136	265	133.0	866.0				57.1
138	381	9.0	62.0		44.4	450.2	149.9
139	351	6.0	131.2	7.0	46.8	15.6	24.9
140	278	1666.8	373.7	1.7			57.6
141	275	308.4	356.6	3.6		2.4	29.2
143	301	16.6	142.3	1.8	58.0	1.4	102.4
158	257	81.6	153.0	1.0			58.7
159	303		62.0		20.4	3.6	47.8
160	416		25.4		60.2	13.8	287.0
161	140					9.3	0.5
162	488	1.0	96.3			58.7	215.6
MEAN		116.7	129.6	1.5	17.9	28.8	89.4

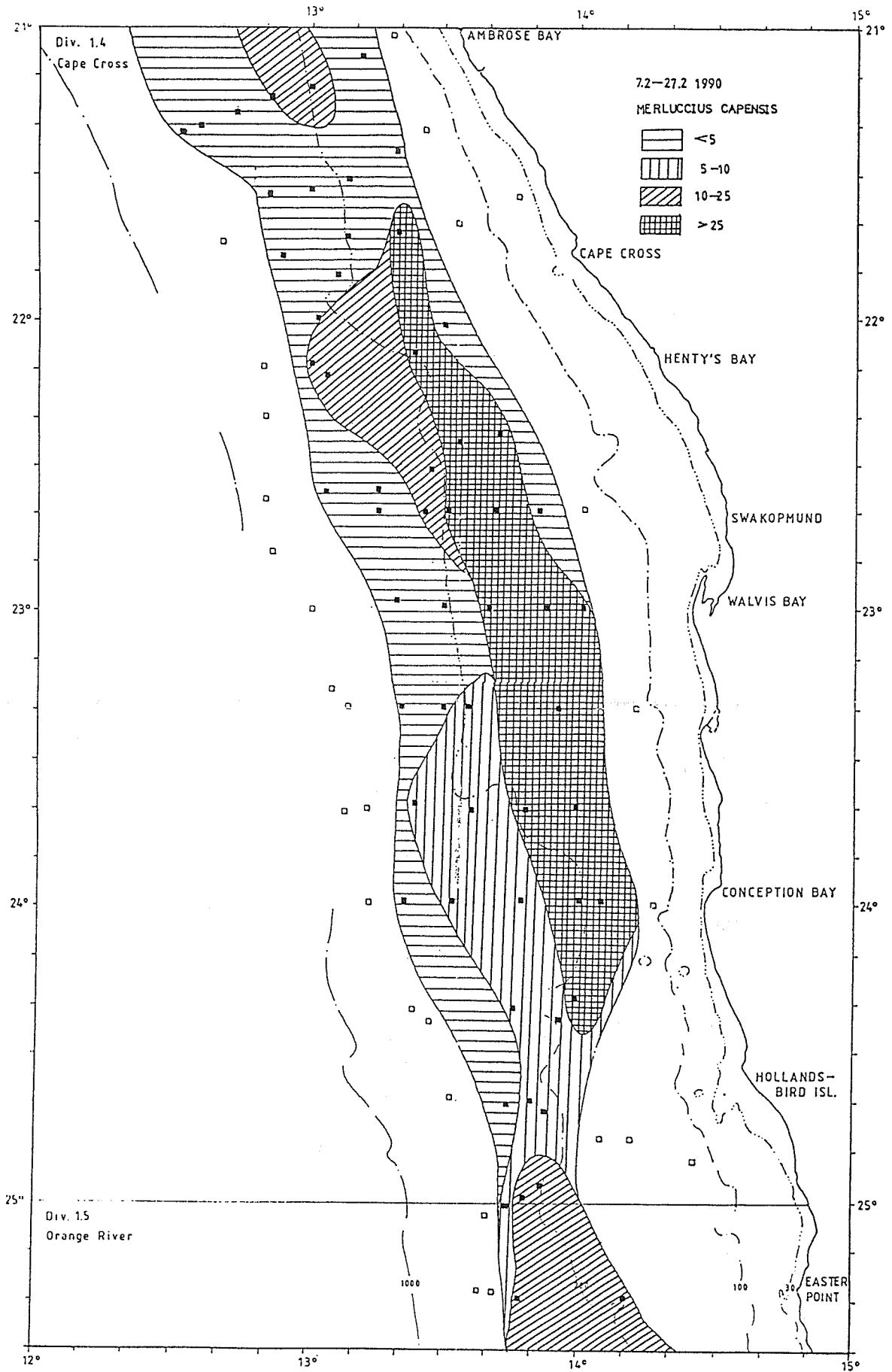


Figure 8. Distribution of Cape hake, St. Francis Bay to Ambrose Bay. Density strata based on catch rates at fishing stations. Tons/nm².

Table 8. Depth distribution of the two hake species, St. Francis Bay to Ambrose Bay. Mean densities t/nm and mean catch rates kg/hour.

	100-250m	250-350m	350-450m	450-550
Cape hake				
Density	27.1	7.4	0.4	
Catch rate	810	220	10	
Precision (%)	51	41	45	
No of hauls	36	21	13	
Deep w. hake				
Density			1.6	1.4
Catch rate			50	40

The application of a mesh selection of a 110 mm trawl shows that only 12% by numbers and 24% by weight of the Cape hake in this area would be fishable, but all of the deep water hake is of fishable sizes.

Estimates of biomass from the two ways of processing the swept area trawl data are shown in Table 9. There is less difference between the two methods in this area than in Div. 1.5, but also here it is thought that the post-stratified density grouping gives the most reliable result. The fishable part is estimated to only 43 000 t. In addition comes the 4 000 t of deep water hake giving a total of about 50 000 t.

Table 9. Estimates of biomass of hakes, St. Francis Bay to Ambrose Bay. Tons.

Cape hake from distribution chart					180 000
From density by depth strata:					
	100-250m	250-350m	350-450m	450-550m	Total
Cape hake	225 000	26 000	700		252 000
Deep sea hake			3 000	1 400	4 000

4.3 Ambrose Bay to Cunene River

Composition of catches

Table 10 shows the catch composition by main groups. Pelagic fish and hakes dominate, and high catches are frequent. Dentex appear north of 20°S with highest catches north of Cape Frio. The catches of pelagic fish were mostly of Cape horse mackerel with some of pilchard and anchovy inshore. The horse mackerel also appeared in the demersal trawl hauls. Large eye dentex, *Dentex macrophthalmus* was the only demersal species other than hake which appeared in significant amounts in the bottom trawl. The highest rates were from the 100-200 m depth range. The flying squid was caught in the slope with catch rates up to 40 kg/hour. Some few catches were made of African mud shrimp *Solenocera africana* at 200-300 m and of striped red shrimp *Aristeus varidens* at 400-500 m.

Table 10. Ambrose Bay to Cunene River. Catch rates by main groups in pelagic and bottom trawl hauls standardized to kg/hour for the shelf- and the slope hauls.

SHELF

ST.NO.	DEP.	Pelagic	Hakes	Other dem.	Squid	Sharks	Other
169	44	0.0					0.0
170	104	0.3					250.0
171	122		6.8				240.0
172	228	39.0	503.8	2.0			47.6
178	5	15068.4					
179	36	12.5					1.6
180	44	0.2					0.1
181	91	0.2					18.6
188	147	7476.0	1797.6	252.0			70.5
189	5	12.0					
190	10	672.0					
191	161	36.0	2076.0	510.0			375.0
198	220	4.6	118.0	25.8	10.0	8.0	58.0
199	83	2500.0					55.5
200	132		383.6				16.4
201	165	1680.0	2032.0	384.0		13.2	128.0
202	221	30.8	1029.6	2.0			91.0
209	216	375.2	739.2	46.2		11.6	100.8
210	105	0.2					120.1
211	86	0.0					
212	141	0.0					
213	238	3451.6	7548.4			12.4	20.4
220	76	1200.0				17.4	
221	28	848.4					4.2
223	195	174.3	371.6	45.8	3.6	105.5	652.6
224	122	1104.0	386.0	916.8			120.4
225	5	900.0					
226	117	1440.0	600.0	3289.2		178.4	773.2
227	195	9.9	827.2	22.0	7.6	8.8	341.5
229	143	3848.0	686.4	884.0	10.4		192.4
231	60	4800.0					
232	12	9.6					
233	35	150.0					
234	10	1600.0					
235	80	11538.4	1.8				
236	10	480.0		0.8			
237	70	180.0	0.4	0.3			1.4
238	127	10752.0	2784.0	240.0			64.0
239	15	101.4					2.2
240	10	280.0					
241	65	107.1					
242	123	0.2	20.4				0.3
243	110	3600.0	7.9				
244	5	1978.8					21.6
245	10	1.8					
246	15	2.6					
247	5	8000.0					
248	5	1802.0					
249	10	540.0					
250	10	208.0					
251	23	513.0					
252	65	4600.0					
253	8	750.0					
MEAN		1752.4	413.6	124.9	0.6	6.7	71.0

SLOPE

ST.NO.	DEP.	Pelagic	Hakes	Other dem.	Squid	Sharks	Other
173	313		338.2	1.0	28.8	4.8	156.5
174	349		9.6		10.6	25.0	61.5
175	450		52.1	2.2	8.4	132.5	280.7
176	550		46.5		4.8	8.3	91.3
177	90				6.4		20.0
182	277	39.0	332.8	2.8			387.4
183	313	1.4	8.6	3.4	3.4	7.2	61.6
184	400		37.9	4.0	30.0	19.2	174.9
185	499		12.1			37.2	99.7
186	296	0.9	25.8	2.0		1.9	72.6
187	257	15.4	48.8				3.4
192	253	26.4	1026.0	22.8	24.0		234.2
193	340	112.0			10.8	32.2	166.5
194	504		14.4		2.9	36.8	386.7
195	373		58.5	15.8	2.0	7.0	153.8
196	452		78.7			67.5	263.6
197	572		12.8			4.1	160.7
203	402		110.7	3.2	14.0	51.9	142.4
204	506		136.0		30.0	66.9	180.8
205	604		19.4		17.0	80.5	174.6
206	371		12.0	11.6	12.0	26.0	171.4
207	323	4.0	9.0		5.6		24.8
208	264	360.8	400.4	145.2		17.0	204.0
214	70	8.4					
215	275	86.4	420.0	4.8	8.4		37.2
216	456	0.1	15.0		10.4	14.4	153.4
217	261	57.2	4500.0		41.6	7.8	632.0
218	416		45.4	1.8	12.0	6.0	120.2
219	570	12.0			3.2	1.6	71.2
222	349		537.6		8.4	33.6	156.8
228	301		231.4		16.2	39.6	235.2
MEAN		23.3	275.4	7.1	10.0	23.5	163.8

The hakes

A further increase was found in the mean density of Cape hake compared with the two southern areas, but the deep water hake was only found in low densities in the 450-550 m range, see Table 11. The two species are well separated by their depth distribution. The three highest catch rates for Cape hake were 7.5, 4.5 and 2.8 tons/hour while those of the deep water species were: 140, 110, and 80 kg/hour.

	100-250m	250-350m	350-450m	450-550
Cape hake				
Density	41.3	20.9	1.0	
Catch rate	1240	630	30	
Precision (%)	98	127	116	
No of hauls	13	12	5	
Deep w. hake				
Density				1.0
Catch rate				30

The density distribution for Cape hake, figure 9, shows the same pattern as in the southern areas with a belt of high densities over the middle part of the shelf. Also here the inshore limit was found just outside the belt of soft muddy bottom along the shore.

The size distribution by depth ranges of 18 and 20 pooled samples respectively are shown in Annex I. Fish sizes are higher than in the previous area and 3+ and higher age groups seem to dominate. There is the usual increase of size with depth and a size distribution for the total stock has been estimated by weighting the depth strata series by the respective biomasses calculated for these strata.

The application of a mesh selection of a 110 mm trawl, shows that 33 % by numbers and 49 % by weight of the Cape hake in this area would represent the fishable stock.

The biomass estimates with the two different approaches are shown in Table 12. The levels are similar to those found between St. Francis Bay and Ambrose Bay. Using the post stratified density groupings the fishable biomass is estimated to 88 000 t.

Cape hake from distribution chart					180 000
From densities by depth strata:					
	100-250m	250-350m	350-450m	450-550m	Total
Cape hake	210 000	56 000	1 500		268 000
Deep sea hake				800	800

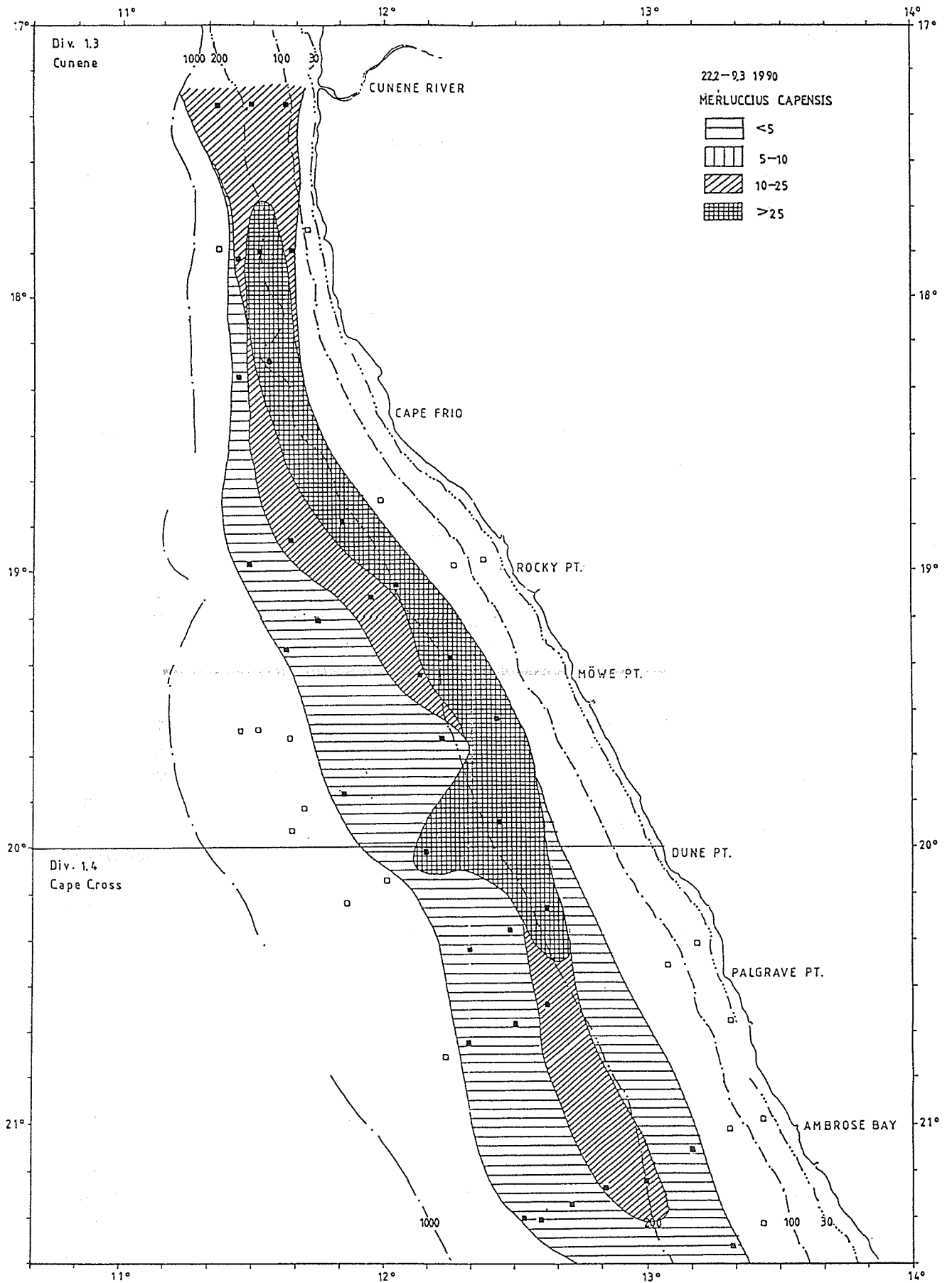


Figure 9. Distribution of Cape hake, Ambrose Bay to Cunene River. Density strata based on catch rates at fishing stations. Tons/nm².

5. REVIEW OF INFORMATION OF THE STATE OF THE MAIN STOCKS AND ADVICE ON MANAGEMENT.

A considerable amount of information exists on the history of the fisheries and the main stocks of the Namibian Sea. Most of this is available in ICSEAF documents and in reports from the Sea Fisheries Research Institute of South Africa. It is thought that the present survey has provided comprehensive updated results which when evaluated on the background of the available previous data can provide important information for decisions regarding the management of the stocks.

The inshore stocks of small pelagic fish

The 230 000 t biomass of **pilchard** found mainly between Walvis Bay and Cape Frio representing one yearclass only shows a size of this stock which is thought to lie within the depleted level reported in later years. The pilchard stock has for some 15 years been in a state of depletion originally caused by overexploitation. The persistence of this state over such a long period must at least in part be due to the policy which has been followed of exploiting the stock at a rate which probably represents its maximum potential in the depleted state. Ecological factors may, however, also have contributed to the prevention of a recovery and of these the high density of Cape horse mackerel may be the most important. The findings of the present survey supports the advice which has been submitted over a long period of years, that fishing on this stock should preferably cease, alternatively be strictly limited particularly on juvenile fish.

The 215 000 t biomass of **anchovy** was found in discrete small patches inshore from Conception Bay to the northern border. Only one yearclass was represented. This result is a confirmation of the stock size of 175 000 t reported from July 1989 and no recovery of the stock has thus taken place. In the mid 1980's the Namibian anchovy fishery came to depend on a high proportion of juveniles and the stock was depleted with no effective management. A recovery of the fishery in 1987 and partly 1988 may have been based on recruitment from the South African stock. In the present situation the fishery should be restricted as much as possible in order to increase the adult component and thus improve outlook for recruitment and reduce fluctuations of the stock biomass.

The Cape horse mackerel stock

This species was found in abundance over the whole shelf from off Walvis Bay to the Cunene River. Particularly in the southern part of the area of distribution a clear size dependence of the fish was found with distance from shore, with the juvenile 1+ group dominating out to 100 m of depth followed by a mixture of the 1+ and the 2+ group between 100 and 200 m and only 2+ fish and older further out. The 1+ group represents about 65% of the stock by numbers, but 80% of the biomass is adult fish. The estimates of biomass are given with a range related to uncertainties regarding the acoustic properties of this species, with a total stock biomass of 1.4 - 2.7 mill tons with a proportion of 2:3 between the southern and the northern areas.

It is not unlikely that it was the depletion of the pilchard stock which left room for the expansion of the stock of Cape horse mackerel to its present large size. The stock has supported catches of 400 000 to 600 000 t since 1978. The ICSEAF assessment of November 1989 based on data up to 1988 recommends a TAC for 1990 of 410 000 t. The biomass estimates from the present survey can not be used directly for assessments of sustained yields, but the findings especially the representation of the various age groups do not seem to be inconsistent with a diagnosis of a relatively healthy stock. The abundant 1+ group indicates a relatively high recruitment. When deciding on and allocating total allowable catches for horse mackerel, account should be taken of bycatches of hake in this fishery. The horse mackerel taken by purse seine in the inshore fishery consists nearly exclusively of the juvenile 1+ group. Improved resource utilization would result from a shift of this fishery further offshore where 2+ group fish is also available.

The stocks of hake in Div. 1.5 and Div. 1.3 and 1.4

The separation of the hakes in Namibian waters into a stock in Division 1.5, the southern stock and one in Div. 1.4+1.3, the northern stock has been practiced by ICSEAF and is provisionally followed in this report without any comment as to its merits.

Consideration of the findings of the survey

Cape hake was found with about the same densities over the whole survey area, whereas densities of the deep sea hake declined markedly northwards. The estimated biomass of deep sea hake between the Orange River and Ambrose Bay was only about 8% of the total hake biomass, a much smaller proportion than those reported from the Spanish surveys of the same area in recent years.

The estimated total biomass of the Cape hake stocks is 130 000t for the southern stock and 360 000 t for the northern stock see Table 13. The juvenile 2+ group dominates in both stocks. Although this domination of the juvenile group is a relative phenomenon only in our data and in part an effect of recent years heavy fishing on the older year-classes, a comparison with results from South African and Spanish surveys in 1989 indicates that this years recruitment to the stock may be better than those of the last few years. An important issue is then to ensure through proper management that this recruit group will contribute to a recovery of the adult stock over the next years. This is discussed further below.

For further use in assessments the biomass estimates are converted to fishable biomass, the part which would be available to fishing with a trawl mesh of 110 mm see Table 13. The fishable part of the estimated biomass including both species is 80 000 t for the southern stock and 140 000 t for the northern stock.

These data together with an evaluation of the present catch level in the fishery and the rate of natural mortality allows an assessment of the long term yield which the stocks would sustain under the conditions of recruitment of recent years. Only rough levels of yield can be expected from such calculations. In this case use was made of Cadima's estimator which has been criticized for giving a certain overestimate of the yields. The projected 1990 catch assuming a theoretical extension of the fishing effort applied in recent

years was 80 000 t for the southern stock and 120 000 t for the northern stock. The estimated long term yields are 50 000 t and 80 000 t for the two stocks. These are then indications of the allowable catches which would be sustained by the stocks with recent years recruitment.

Table 13. Summary of estimates of biomass for the two hake species by areas. Tons.

	Total biomass	Fishable biomass	Total fishable biomass
Orange River -			
St. Francis Bay			
Cape hake	130 000	68 000	
Deep s.hake	22 000	13 000	80 000
St. Francis Bay-			
Ambrose Bay			
Cape hake	180 000	43 000	
Deep s.hake	4 000	4 000	
Ambrose Bay-			
Cunnene River			
Cape hake	180 000	88 000	
Deep s.hake	800	800	140 000

Another approach is to assume that the observed fishable biomass will represent the mean biomass available to fishing through 1990. An application of the F_{max} which in the case of the northern stock has been estimated to 0.25 (Schumacher, 1986) to the stock biomasses gives yields of 20 000 t for the southern stock and 35 000 t for the northern stock. This represents an underestimation since under constant recruitment the biomass would increase if the fishing pressure were reduced. Also the recruitment is likely to increase as compared to recent years, but use must be made of this component to rebuild the adult stock.

The state of the hake stocks and advice on management.

The Namibian hake stocks sustained catch levels of 500 000 t to 600 000 t for nearly a ten year period up to the late 1970's. Fishing was much reduced in the early 1980's due to poor catch rates, but high recruitment attracted new effort and catches reached 400 000 t in 1985. Later analyses have shown that use was not made of the high recruitment to rebuild the stocks and in the late 1980's the stocks were brought to their present low level through fishing at a level of more than the double of F_{max} , the fishing mortality giving the maximum sustainable yield. An adequate future management of the hake stocks would include the need to limit the fishing effort to about half of that applied in recent years. Total hake catches in 1987 and 1988 were around 300 000 t. The catch statistics for 1989 is not yet available, but judging from the Spanish survey results there was a further decrease of biomass from 1988 to 1989 and based on this the 1989 catch could be as low as 200 000 t. A 50% reduction in effort would thus represent a catch of between 100 000- 150 000 t.

In the long term a direct regulation of fishing effort may be the most rational way of controlling the fishing mortality, but this assumes detailed information on the fishing power

of the various types of vessel engaged in the fishery. In the short term regulation by total allowable catches, TAC's is the only practicable approach.

Table 14 summarizes the available information for assessing the 1990 TAC. Since the first assessment is likely to be an underestimate and the second an overestimate a TAC of 100 000 t could be an appropriate choice. This represents the lower level of the very rough calculation of a 50% reduction of fishing effort. The catch already taken in 1990 should be deducted before setting the TAC.

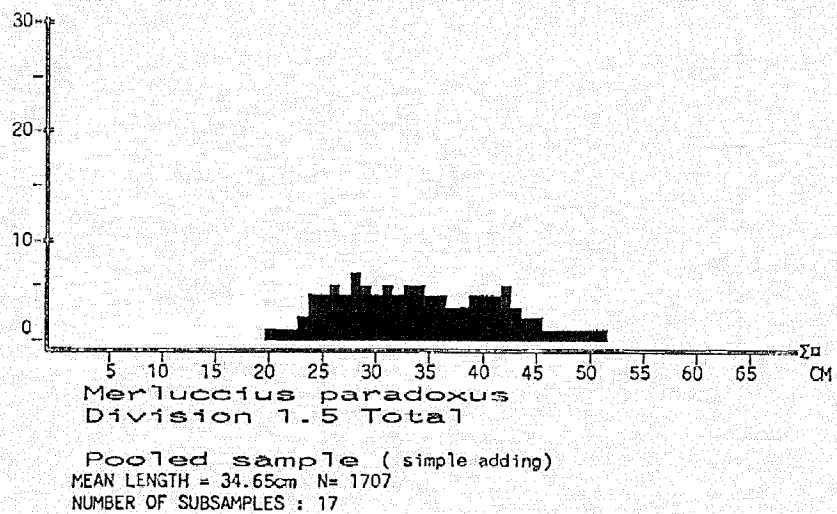
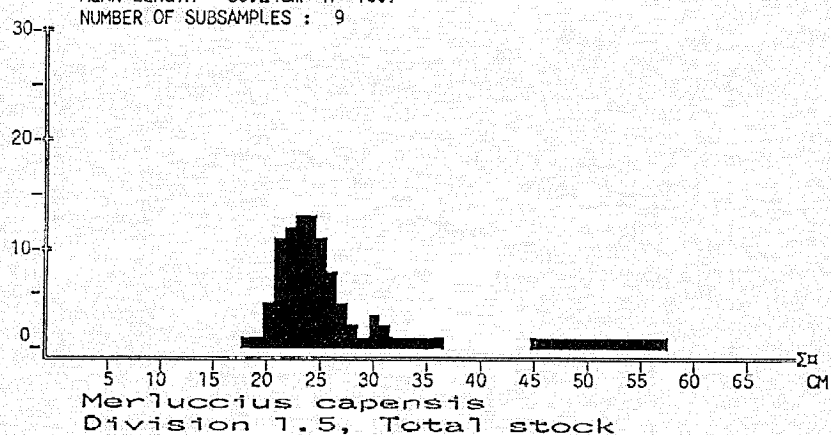
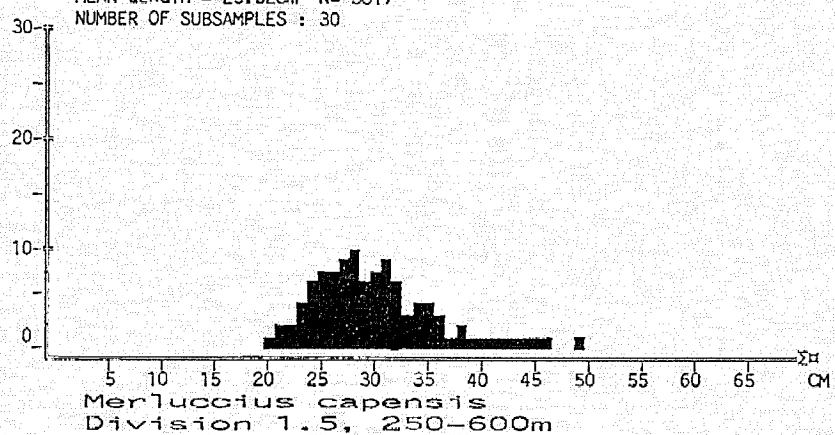
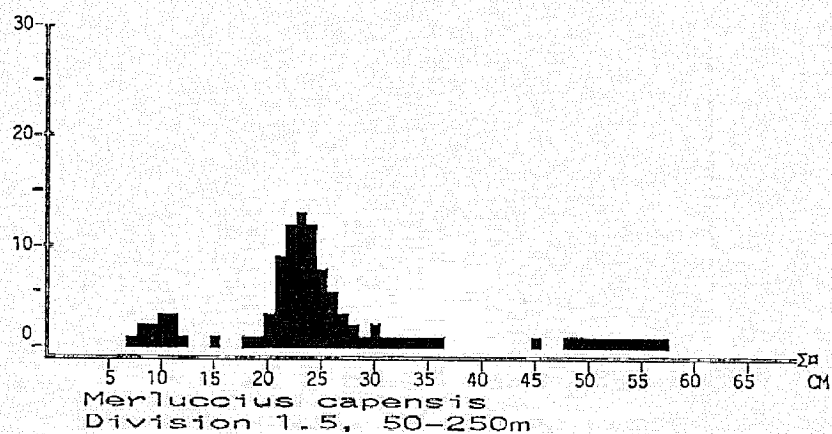
Table 14. Review of information for assessing hake TAC's for 1990.		
From survey biomass estimates		50% reduction of recent fishing effort
Fmax on biomass	MSY from biomass and recent yield	
55 000t	130 000t	100 000-150 000t

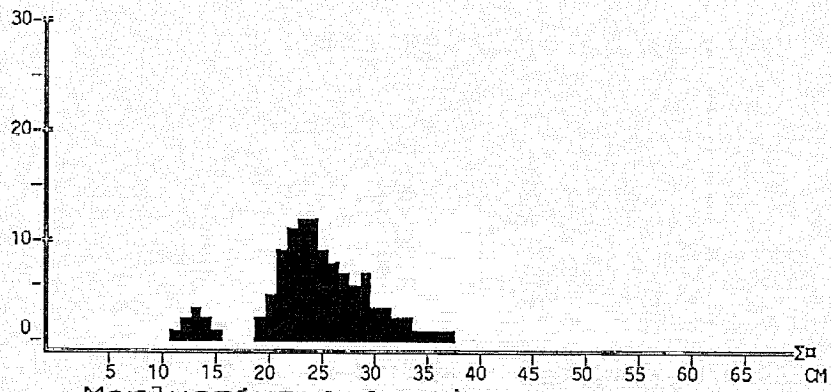
Although it is assumed that a reduction of fishing mortality to the level of F_{max} will allow at least part of the improved recruitment in 1990 to contribute to a recovery of the adult stock one should also consider the merits of protecting the small sized hake from excessive fishing through increase of the minimum trawl mesh size. Even the nominal selection curve of a 110 mm mesh will include fish down to 25 cm of length and in practice fleet selection will result in higher proportions of small sized fish. The present mesh size allows the fleet to have high catch rates by concentrating fishing in areas of high density of juveniles. This could be prevented by increasing the mesh size to 120 mm which would take little fish below 30 cm. An increase of the minimum catching size would have beneficial effects in resulting in a higher standing biomass of the spawning stock and a less fluctuating fishable biomass. Economically the value of the yield would increase as a result of the higher value of large sized fish. Serious consideration should therefore be given to the introduction of a higher mesh size in the Namibian hake fishery.

Literature

- Augustyn, C.J., Badenhorst, A. and R.W. Leslie. 1989. Biomass indices for Cape hake and other demersal species and trends in recruitment of Cape hake in South African waters between 1983 and 1989. ICSEAF Paper, SAC/89/S.P./24.
- Boyd, A. J., Salat, J. and M. Maso. 1987. The seasonal intrusion of relatively saline water on the shelf off northern and central Namibia. *S.Afr.J.mar. Sci.* 5:107-120.
- Gordoa, A. and E. Macpherson. 1989. Biomass indices for Cape hake and other commercial species in Namibian waters (Divisions 1.4 and 1.5) from 1989 surveys. ICSEAF Paper SAC/89/S.P./36.
- Ivanova, N. M., Dimitrikov, S. P., Ivanova, V.V., Kadilnikov, Yu.V. and G.N.Chetyrkina. 1989. Study of the influence of the Polish type enforcement topside chafer on trawl codend selectivity in the Cape hake fishery. ICSEAF Paper SAC/89/S.P./6 .
- Schumacher, A. 1986. Assessment of the Cape hake population in ICSEAF Divisions 1.3+1.4. ICSEAF Paper SAC/86/S.P./43.
- Svellingen, I.K. 1989. Analyse av svømmeblæreobservasjoner for bestemmelse av target strengt. Manuscript.

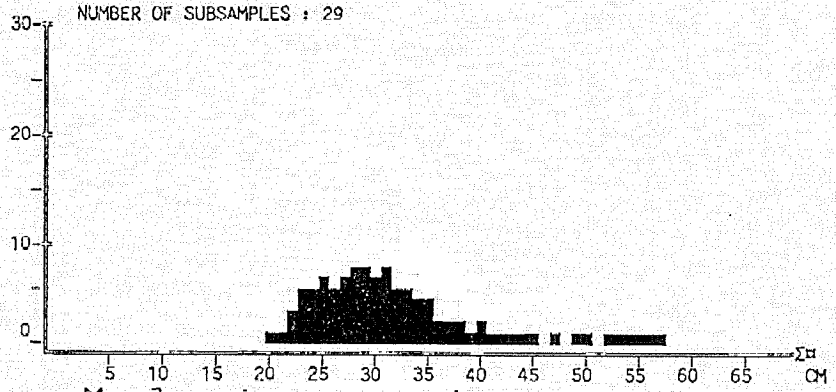
Annex I. Size compositions of main species.





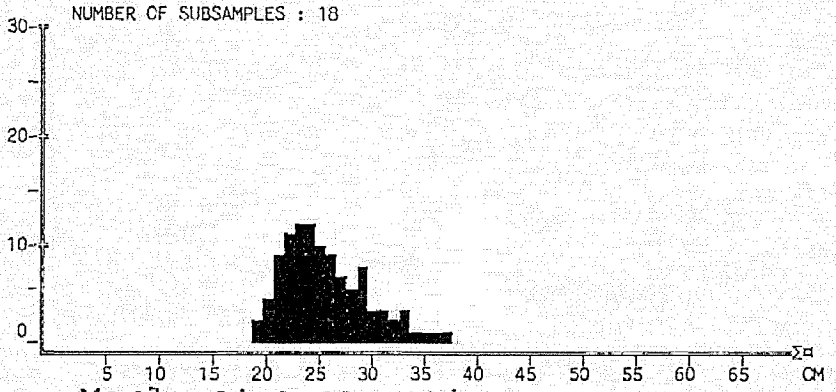
Merluccius capensis
St. Francis to Ambrose, 100-250

Pooled sample (simple adding)
MEAN LENGTH = 24.69cm N= 6312
NUMBER OF SUBSAMPLES : 29

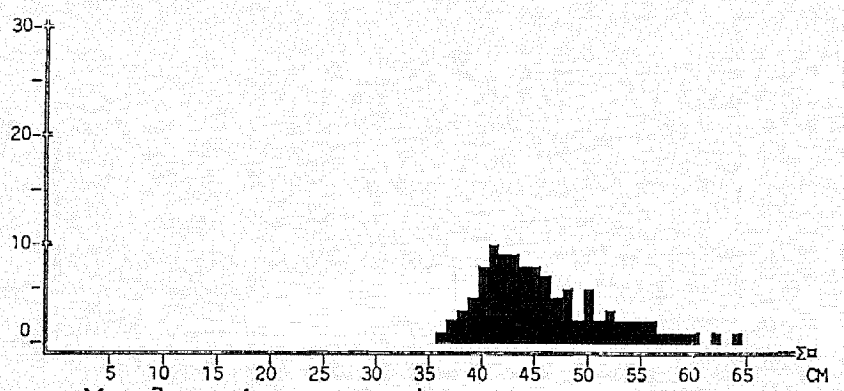


Merluccius capensis
St. Francis to Ambrose, 251-600

Pooled sample (simple adding)
MEAN LENGTH = 32.34cm N= 3215
NUMBER OF SUBSAMPLES : 18

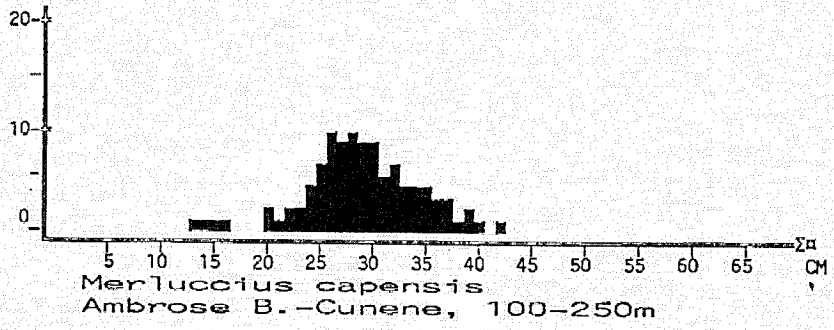


Merluccius capensis
St. Francis-Ambrose, Total stock

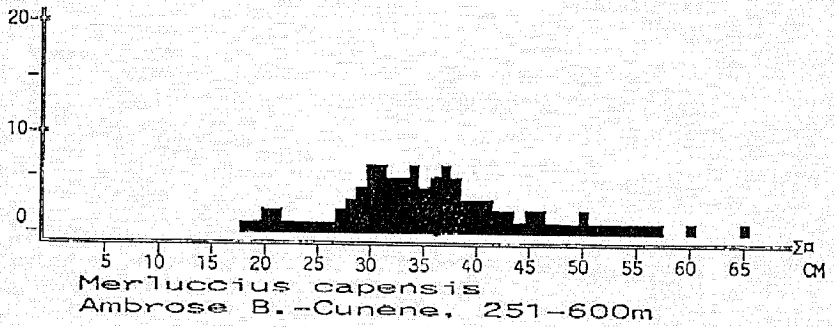


Merluccius paradoxus
St. Francis Bay- Ambrose Bay

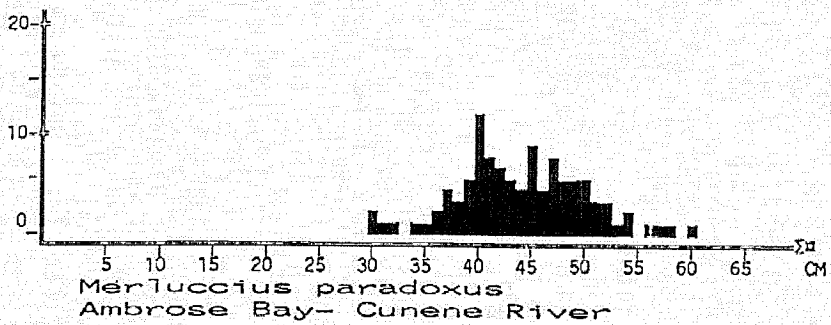
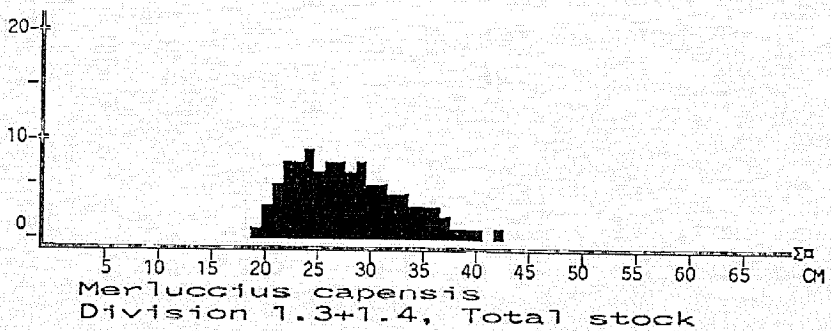
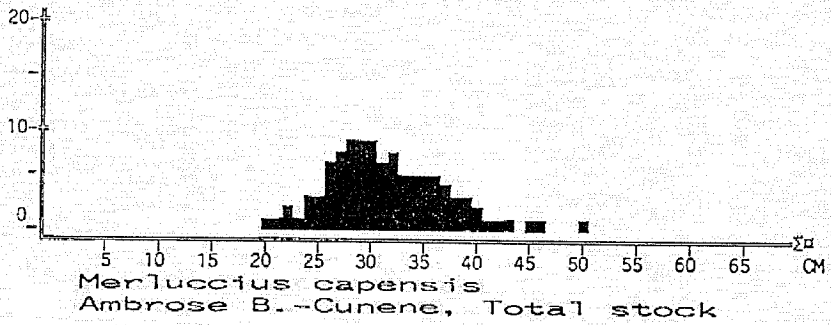
Pooled sample (simple adding)
MEAN LENGTH = 45.73cm N= 495
NUMBER OF SUBSAMPLES : 13



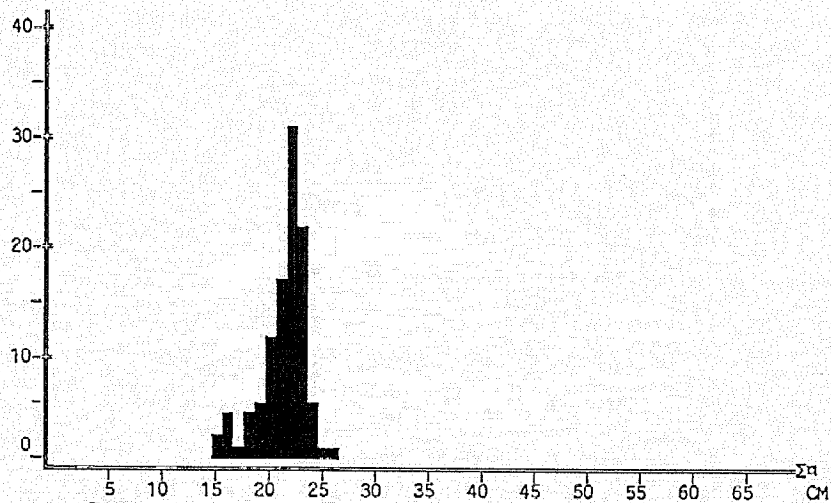
Pooled sample (simple adding)
MEAN LENGTH = 29.55cm N= 1923
NUMBER OF SUBSAMPLES : 19



Pooled sample (simple adding)
MEAN LENGTH = 36.44cm N= 1747
NUMBER OF SUBSAMPLES : 20

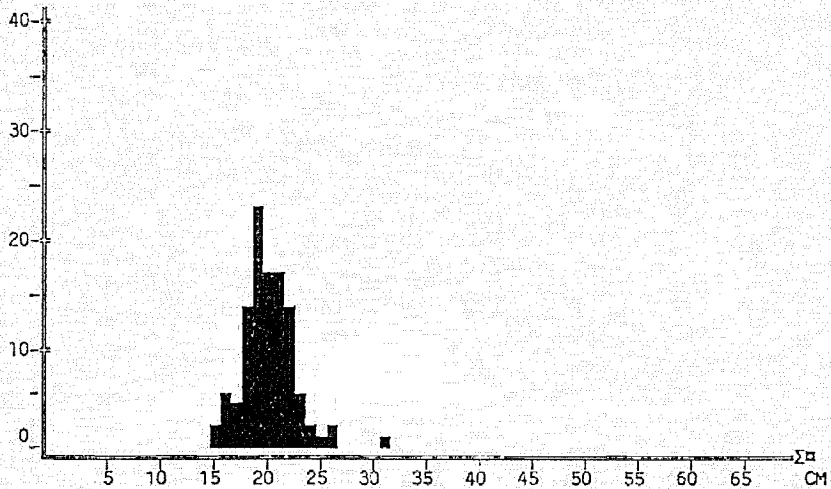


Pooled sample (simple adding)
MEAN LENGTH = 44.36cm N= 532
NUMBER OF SUBSAMPLES : 8



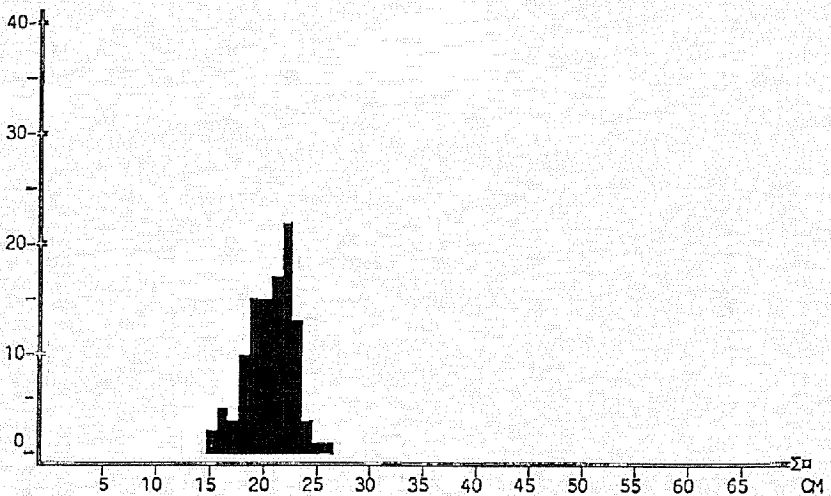
Sardinops ocellata
St. Francis-Ambrose, all samples

Pooled sample (simple adding)
MEAN LENGTH = 21.23cm N= 179
NUMBER OF SUBSAMPLES : 8



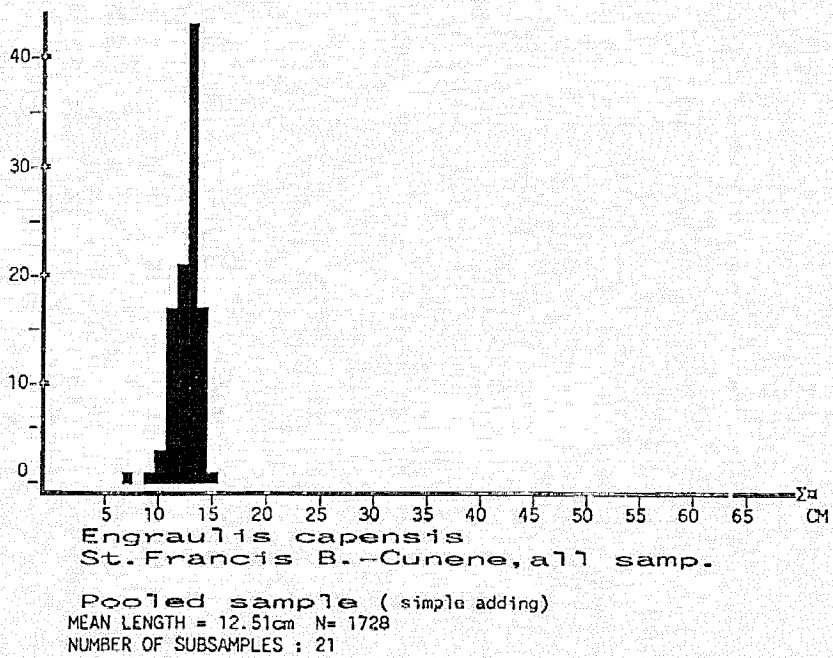
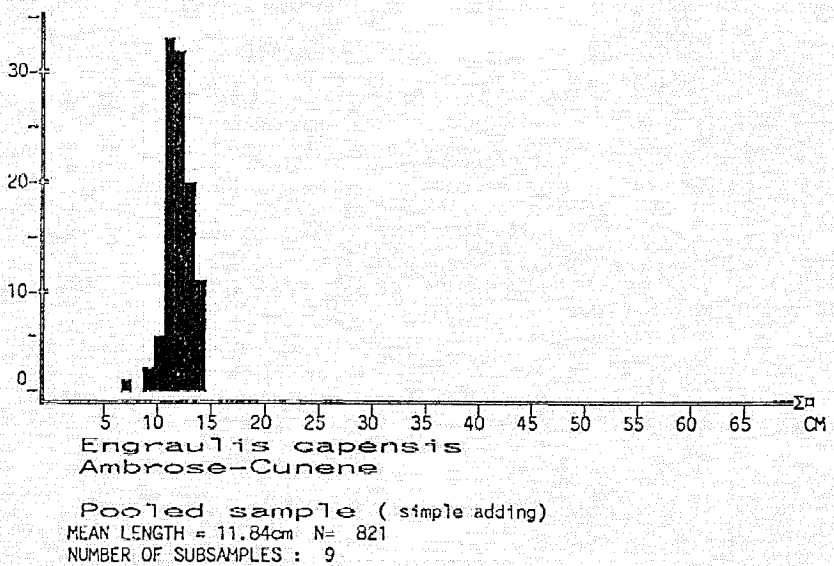
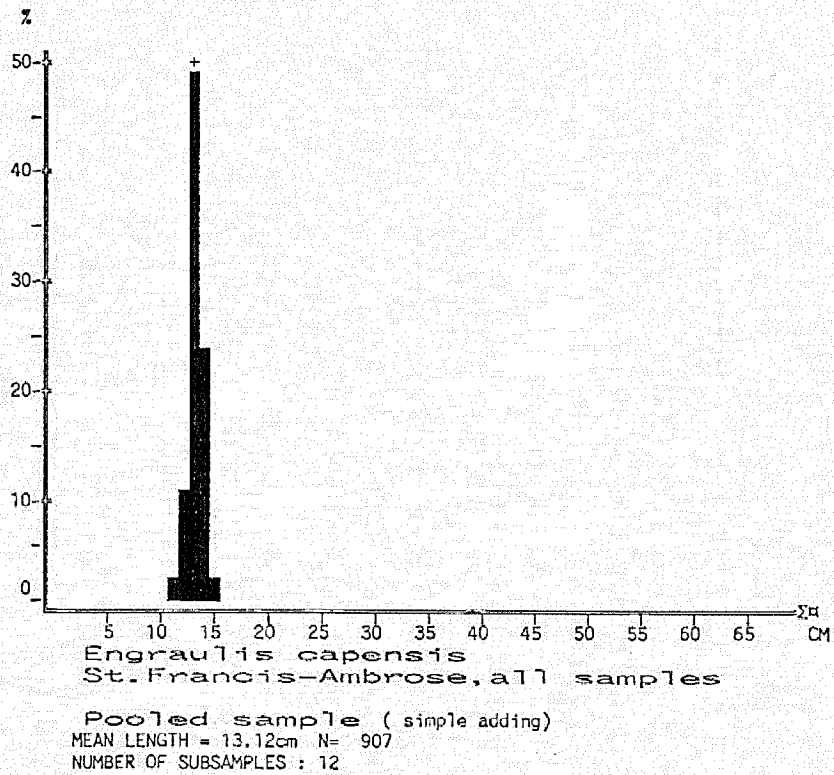
Sardinops ocellata
Ambrose-Cunene,

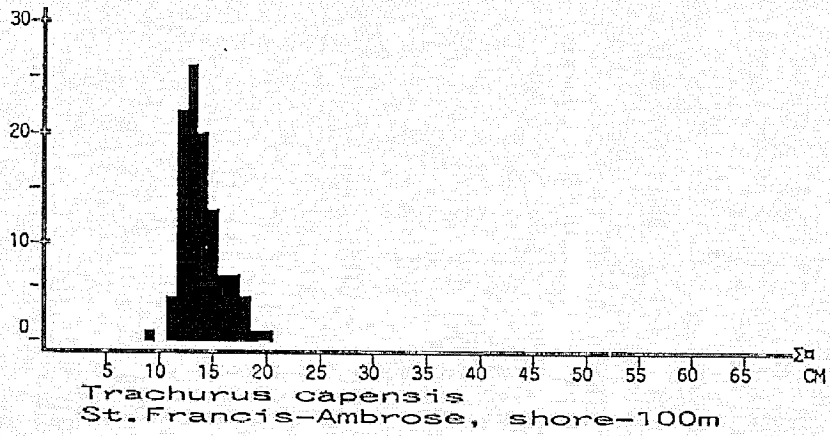
Pooled sample (simple adding)
MEAN LENGTH = 19.91cm N= 194
NUMBER OF SUBSAMPLES : 4



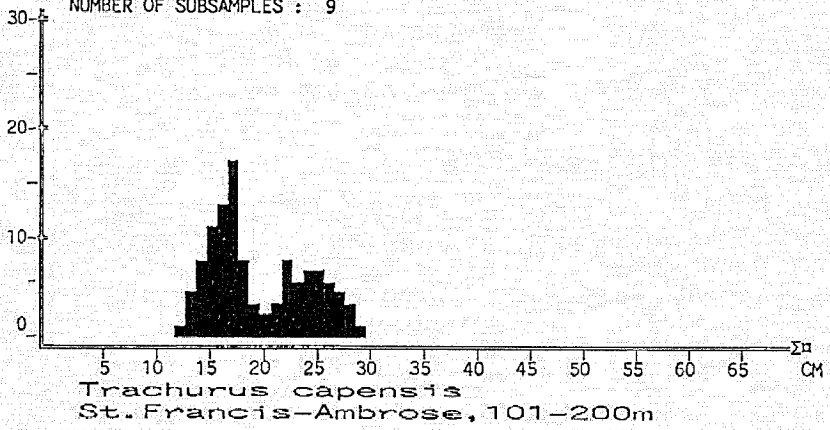
Sardinops ocellata
St. Francis B.-Cunene, all samp.

Pooled sample (simple adding)
MEAN LENGTH = 20.54cm N= 373
NUMBER OF SUBSAMPLES : 12

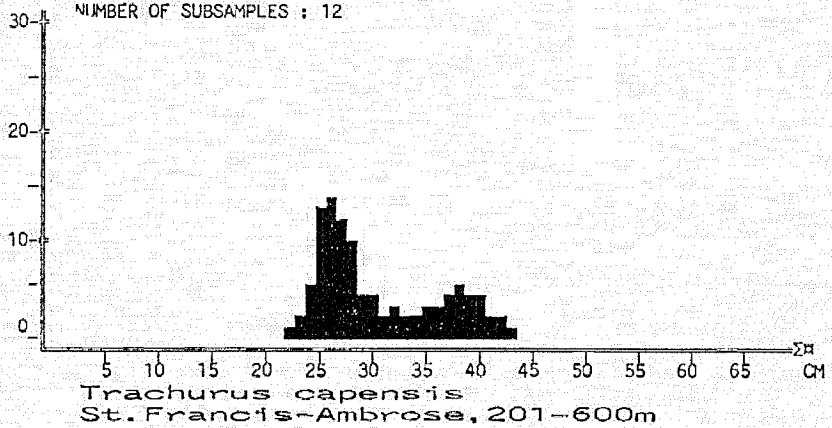




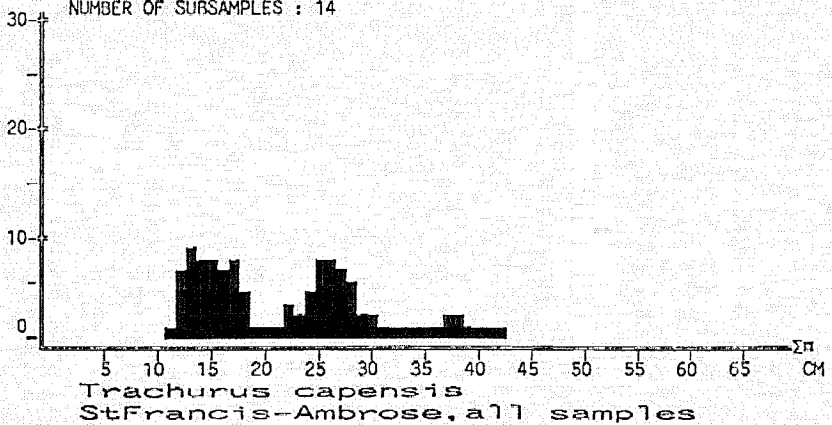
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NUMBER OF SUBSAMPLES : 9



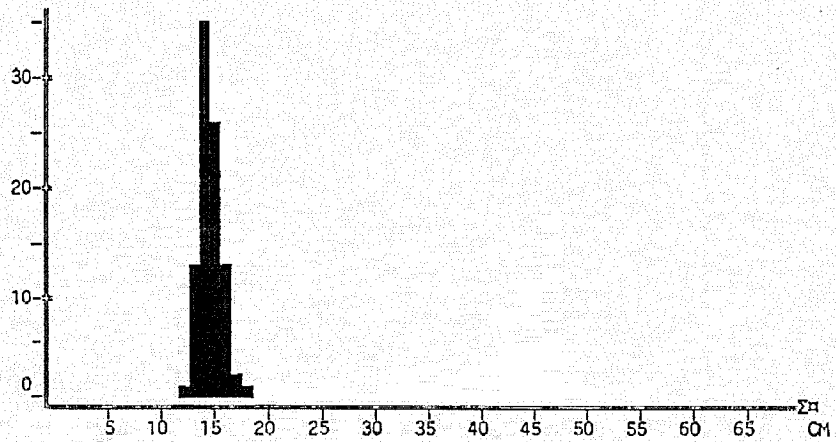
Pooled sample (simple adding)
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NUMBER OF SUBSAMPLES : 12



Pooled sample (simple adding)
MEAN LENGTH = 30.47cm N= 1405
NUMBER OF SUBSAMPLES : 14

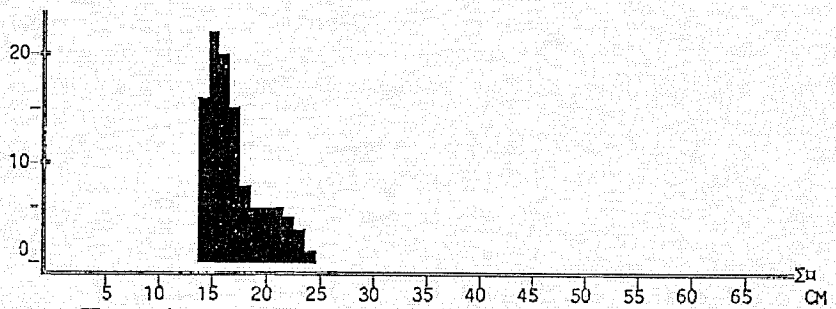


Pooled sample (simple adding)
MEAN LENGTH = 22.25cm N= 3512
NUMBER OF SUBSAMPLES : 35



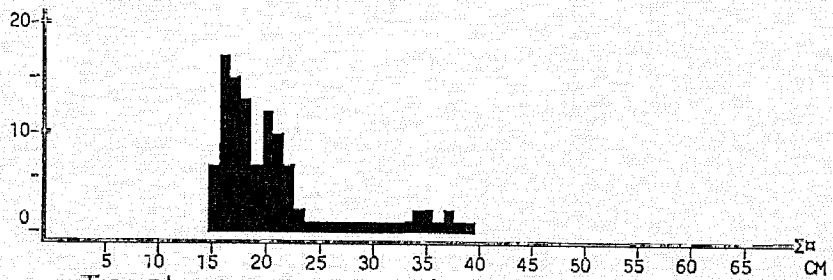
Trachurus capensis
Ambrose-Cunene, shore-100m

Pooled sample (simple adding)
MEAN LENGTH = 14.55cm N= 2040
NUMBER OF SUBSAMPLES : 20



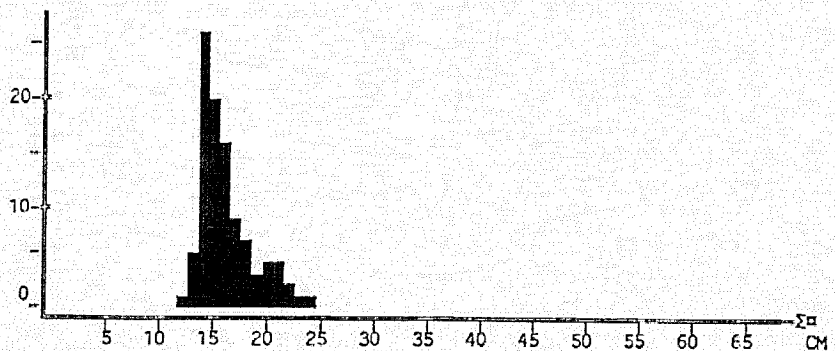
Trachurus capensis
Ambrose-Cunene, 101-200m depth

Pooled sample (simple adding)
MEAN LENGTH = 17.04cm N= 1273
NUMBER OF SUBSAMPLES : 10



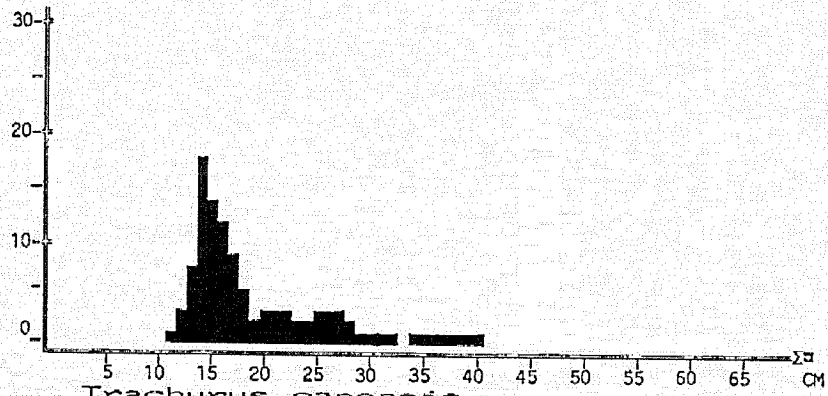
Trachurus capensis
Ambrose-Cunene, 200m-slope

Pooled sample (simple adding)
MEAN LENGTH = 20.92cm N= 1141
NUMBER OF SUBSAMPLES : 12



Trachurus capensis
Ambrose-Cunene, all samples

Pooled sample (simple adding)
MEAN LENGTH = 16.89cm N= 4454
NUMBER OF SUBSAMPLES : 42



Trachurus capensis
St. Francis-Cunene, Total stock

Pooled sample (simple adding)
MEAN LENGTH = 19.29cm N= 8066
NUMBER OF SUBSAMPLES : 77

Annex II. Records of fishing stations.

PROJECT STATION: 2										PROJECT STATION: 7																			
DATE: 27/1/90					GEAR TYPE: BT No:1					POSITION: Lat S 2713					DATE: 28/1/90					GEAR TYPE: BT No:1					POSITION: Lat S 2855				
start stop duration					Long E 1500					start stop duration					Long E 1550														
TIME :17:03:00 17:33:00 30 (min)					Purpose code: 3					TIME :14:04:00 14:34:00 30 (min)					Purpose code: 3														
LOG :1706.90 1708.50 1.60					Area code : 1					LOG :1899.40 1891.20 1.80					Area code : 1														
FDEPTH: 164 166					GearCond.code:					FDEPTH: 172 172					GearCond.code:														
RDEPTH: 164 166					Validity code:					RDEPTH: 172 172					Validity code:														
Towing dir: 331° Wire out: 700 m Speed: 30 kn*10										Towing dir: 340° Wire out: 700 m Speed: 35 kn*10																			
Sorted: 24 Kg					Total catch: 473.10					CATCH/HOUR: 946.20					Sorted: 88 Kg					Total catch: 205.55					CATCH/HOUR: 411.10				
SPECIES										SPECIES																			
CATCH/HOUR					% OF TOT. C					CATCH/HOUR					% OF TOT. C														
weight numbers										weight numbers																			
Merluccius capensis	904.40 8842				95.58 1					Merluccius capensis	183.00 2308				44.51 14														
Chelidonichthys capensis	41.80 190				4.42					Brama brama	92.00 52				22.38 12														
Sufflogobius bibarbatus	0.38 76				0.04					Lampanyctodes hectoris	55.00 25142				13.38														
Lepidopus caudatus	0.00 2									Chelidonichthys capensis	28.00 80				6.81														
Sepiella sp	0.00 2									Sepia australis	15.00 840				3.65														
Austroglossus microlepis	0.00 2									Thyrsites atun	11.00 10				2.68 13														
Total 946.58					100.04					Total 411.10					100.01														
PROJECT STATION: 3																													
DATE: 28/1/90					GEAR TYPE: BT No:1					POSITION: Lat S 2840																			
start stop duration					Long E 1619																								
TIME :06:56:00 07:26:00 30 (min)					Purpose code: 3					TIME :18:28:00 18:58:00 30 (min)					Purpose code: 3														
LOG :1842.40 1844.00 1.60					Area code : 1					LOG :1907.10 1908.60 1.50					Area code : 1														
FDEPTH: 27 31					GearCond.code:					FDEPTH: 180 179					GearCond.code:														
RDEPTH: 27 31					Validity code: 9					RDEPTH: 180 179					Validity code:														
Towing dir: 310° Wire out: 200 m Speed: 18 kn*10										Towing dir: 340° Wire out: 800 m Speed: 32 kn*10																			
Sorted: Kg					Total catch:					CATCH/HOUR:					Sorted: 32 Kg					Total catch: 169.60					CATCH/HOUR: 339.20				
SPECIES										SPECIES																			
CATCH/HOUR					% OF TOT. C					CATCH/HOUR					% OF TOT. C														
weight numbers										weight numbers																			
Merluccius capensis	0.00 2									Merluccius capensis	142.80 906				42.10 20														
Trachurus capensis	0.00 18									Brama brama	58.60 36				17.28 17														
Total 0.00					18					Total 339.00					99.94														
PROJECT STATION: 4																													
DATE: 28/1/90					GEAR TYPE: BT No:1					POSITION: Lat S 2841																			
start stop duration					Long E 1615																								
TIME :08:10:00 08:40:00 30 (min)					Purpose code: 3					TIME :18:26:00 19:06:00 30 (min)					Purpose code: 3														
LOG :1848.80 1850.40 1.60					Area code : 1					LOG :1924.90 1926.50 1.60					Area code : 1														
FDEPTH: 77 74					GearCond.code:					FDEPTH: 180 183					GearCond.code:														
RDEPTH: 77 74					Validity code:					RDEPTH: 180 183					Validity code:														
Towing dir: 330° Wire out: 300 m Speed: 32 kn*10										Towing dir: 330° Wire out: 600 m Speed: 32 kn*10																			
Sorted: 34 Kg					Total catch: 4024.00					CATCH/HOUR: 8048.00					Sorted: 29 Kg					Total catch: 139.70					CATCH/HOUR: 279.40				
SPECIES										SPECIES																			
CATCH/HOUR					% OF TOT. C					CATCH/HOUR					% OF TOT. C														
weight numbers										weight numbers																			
Merluccius capensis	8036.00 84012				99.85 2					Merluccius capensis	75.60 954				27.06 27														
Thyrsites atun	12.00 8				0.15 3					Merluccius capensis	51.80 636				18.54 26														
Trachurus capensis	0.00 2									Merluccius capensis	46.20 444				16.54 26														
Total 8048.00					100.00					Total 279.40					99.99														
PROJECT STATION: 5																													
DATE: 28/1/90					GEAR TYPE: BT No:1					POSITION: Lat S 2844																			
start stop duration					Long E 1610																								
TIME :09:39:00 09:50:00 11 (min)					Purpose code: 3					TIME :18:26:00 19:06:00 30 (min)					Purpose code: 3														
LOG :1857.70 1858.40 0.70					Area code : 1					LOG :1924.90 1926.50 1.60					Area code : 1														
FDEPTH: 119 112					GearCond.code:					FDEPTH: 180 183					GearCond.code:														
RDEPTH: 113 112					Validity code:					RDEPTH: 180 183					Validity code:														
Towing dir: 330° Wire out: 500 m Speed: 32 kn*10										Towing dir: 330° Wire out: 600 m Speed: 32 kn*10																			
Sorted: 25 Kg					Total catch: 267.90					CATCH/HOUR: 1461.27					Sorted: 29 Kg					Total catch: 139.70					CATCH/HOUR: 279.40				
SPECIES										SPECIES																			
CATCH/HOUR					% OF TOT. C					CATCH/HOUR					% OF TOT. C														
weight numbers										weight numbers																			
Merluccius capensis	1314.55 15055				89.96 4					Merluccius capensis	51.80 636				18.54 26														
Callinectes sapidus	63.82 27				4.37 7					Merluccius capensis	46.20 444				16.54 26														
Chelidonichthys capensis	43.64 109				2.99					Merluccius capensis	43.00 28				15.39 23														
MYCTOPHIDAE	13.64 2891				0.93					Sepia australis	31.20 2112				11.17														
Genypterus capensis	10.93 33				0.75					Chelidonichthys capensis	23.80 30				4.94														
Thyrsites atun	10.36 11				0.71 8					Sardinops ocellata	7.00 30				2.51														
Lepidopus caudatus	5.45 109				0.37					Todarodes sagittatus	3.00 30				1.07														
Janusalandii	2.73 22				0.19					Paracallionymus costatus	1.80 192				0.64														
Austroglossus microlepis	1.64 5				0.11					Thyrsites atun	1.80 2				0.64														
Merluccius capensis female	0.00 6									Squalus megalops	1.60 2				0.57														
Merluccius capensis male	0.00 5									Holohalaelurus regani	0.80 4				0.29														
Sepia sp	0.00 55									Cynoglossus capensis	0.60 36				0.21														
Squilla sp	0.00 327									Lepidopus caudatus	0.60 6				0.21														
Total 1466.74					100.38					Total 279.40					99.99														
PROJECT STATION: 6																													
DATE: 28/1/90					GEAR TYPE: BT No:1					POSITION: Lat S 2850																			
start stop duration					Long E 1802																								
TIME :11:55:00 12:25:00 30 (min)					Purpose code: 3					TIME :01:44:00 02:44:00 60 (min)					Purpose code: 3														
LOG :1873.70 1875.60 1.90					Area code : 1					LOG :1989.90 1992.50 2.60					Area code : 1														
FDEPTH: 144 143					GearCond.code:					FDEPTH: 400 400					GearCond.code:														
RDEPTH: 144 143					Validity code:					RDEPTH: 400 400					Validity code:														
Towing dir: 330° Wire out: 600 m Speed: 32 kn*10										Towing dir: 340° Wire out: 1400 m Speed: 30 kn*10																			
Sorted: 28 Kg					Total catch: 412.70					CATCH/HOUR: 825.40					Sorted: 25 Kg					Total catch: 71.15					CATCH/HOUR: 71.15				
SPECIES										SPECIES																			
CATCH/HOUR					% OF TOT. C					CATCH/HOUR					% OF TOT. C														
weight numbers										weight numbers																			
Merluccius capensis	747.60 10060				90.57 9					Krill	50.00 226666				70.27														
Chelidonichthys capensis	39.20 140				4.75					Merluccius paradoxus	14.20 43				19.96 30														
Brama brama	14.80 8				1.79 10					Callinectes sp	3.00 90				4.22 20														
Sepia australis	8.40 392				1.02					Conorhinus fasciatus	2.50 135				3.51														
Scomber japonicus	6.00 4				0.73 11					Physiculus capensis	0.50 15				0.70														
Merluccius dactylopterus	4.00 112				0.36					Helicolenus dactylopterus	0.50 10				0.70														
Genypterus capensis	2.60 2				0.31					Paracallionymus costatus	0.25 40				0.35														
Octopus vulgaris	2.00 2				0.24					Notocanthus sexspinis	0.10 20				0.14														
Todarodes sagittatus	1.20 4				0.15					Epigonus pandionis	0.05 5				0.07														
Loligo vulgaris	0.80 2				0.10					Lampanyctodes hectoris	0.05 60				0.07														
Paracallionymus costatus	0.00 2									Merluccius paradoxus female	0.00 29																		
Total 825.40					100.00					Total 71.15					99.99														
PROJECT STATION: 7																													
DATE: 29/1/90					GEAR TYPE: BT No:1					POSITION: Lat S 2929																			
start stop duration					Long E 1437																								
TIME :01:44:00 02:44:00 60 (min)					Purpose code: 3					TIME :01:44:00 02:44:00 60 (min)					Purpose code: 3														
LOG :1989.90 1992.50 2.60					Area code : 1					LOG :1989.90 1992.50 2.60					Area code : 1														
FDEPTH: 400 400					GearCond.code:					FDEPTH: 400 400					GearCond.code:														
RDEPTH: 400 400					Validity code:					RDEPTH: 400 400					Validity code:														
Towing dir: 340° Wire out: 1400 m Speed: 30 kn*10										Towing dir: 340° Wire out: 1400 m Speed: 30 kn*10																			
Sorted: 25 Kg					Total catch: 71.15					CATCH/HOUR: 71.15					Sorted: 25 Kg					Total catch: 71.15					CATCH/HOUR: 71.15				
SPECIES										SPECIES																			
CATCH/HOUR					% OF TOT. C					CATCH/HOUR					% OF TOT. C														
weight numbers										weight numbers																			
Merluccius paradoxus	14.20 43				19.96 30					Merluccius paradoxus	14.20 43				19.96 30														
Callinectes sp	3.00 90				4.22 20					Merluccius paradoxus female	0.00 29																		
Conorhinus fasciatus	2.50 135				3.51					Merluccius paradoxus male	0.00 28																		
Physiculus capensis	0.50 15				0.70					Total 71.15					99.99														
Helicolenus dactylopterus	0.50 10				0.70					Total 71.15					99.99														
Paracallionymus costatus	0.25 40				0.35					Total 71.15					99.99														
Notocanthus sexspinis	0.10 20				0.14					Total 71.15					99.99														
Epigonus pandionis	0.05 5				0.07					Total 71.15					99.99														
Lampanyctodes hectoris	0.05 60				0.07					Total 71.15					99.99														
Merluccius paradoxus female	0.00 29									Total 71.15					99.99														
Merluccius paradoxus male	0.00 28									Total 71.15					99.99														

PROJECT STATION: 11
 DATE: 29/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2913 Long E 1425
 start stop duration
 TIME : 06:17:00 07:17:00 60 (min) Purpose code: 3
 LOG : 2009.50 2012.80 3.30 Area code : 1
 FDEPTH: 300 304 GearCond.code: 8
 BDEPTH: 300 304 Validity code: 9
 Towing dir: 345° Wire out: 1100 m Speed: 33 kn*10

PROJECT STATION: 15
 DATE: 29/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2849 Long E 1515
 start stop duration
 TIME : 17:48:00 18:18:00 30 (min) Purpose code: 3
 LOG : 2099.20 2100.60 1.40 Area code : 1
 FDEPTH: 161 158 GearCond.code: 8
 BDEPTH: 161 158 Validity code: 9
 Towing dir: 60° Wire out: 700 m Speed: 28 kn*10

Sorted: 36 Kg Total catch: 142.90 CATCH/HOUR: 142.90

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Merluccius capensis	98.00	653	68.58	33
Malacocephalus laevis	14.50	225	10.15	32
Cynoglossus zanzibarensis	5.50	255	5.25	
Genypterus capensis	7.10	5	4.97	31
Helicolenus dactylopterus	4.80	165	3.15	
Holohalaelurus regani	2.50	10	1.75	
Todarodes sagittatus	2.50	20	1.75	
Thyrsites atun	2.30	1	1.61	
Paracallionymus costatus	2.00	200	1.40	
Rossia sp	1.00	50	0.70	
Lepidopus caudatus	0.50	5	0.35	
Todaropsis eblanae	0.50	10	0.35	
Merluccius capensis male	0.00			35
Merluccius capensis female	0.00			34
Total	142.90		100.01	

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Total				

PROJECT STATION: 16
 DATE: 29/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2843 Long E 1525
 start stop duration
 TIME : 20:03:00 20:33:00 30 (min) Purpose code: 3
 LOG : 2113.50 2115.20 1.70 Area code : 1
 FDEPTH: 186 186 GearCond.code: 8
 BDEPTH: 186 186 Validity code: 9
 Towing dir: 260° Wire out: 700 m Speed: 34 kn*10

Sorted: 51 Kg Total catch: 172.25 CATCH/HOUR: 344.50

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Merluccius capensis	235.00	1750	68.51	51
Sepia australis	42.00	2112	12.19	
Scorpaenopsis japonicus	11.80	6	3.43	
Otopus vulgaris	11.00	2	2.19	
Genypterus capensis	8.00	32	2.32	50
Paracallionymus costatus	6.00	420	1.74	
Chelidonichthys capensis	6.00	10	1.74	
Raja clavata	5.20	2	1.51	
Cynoglossus zanzibarensis	5.00	110	1.45	
Trachurus capensis	4.60	6	1.34	
Helicolenus dactylopterus	4.00	90	1.16	
Squalus megalops	3.00	10	0.87	
Holohalaelurus regani	0.80	4	0.23	
Solenocera africana	0.50	110	0.15	
Lophius upsicephalus	0.50	30	0.15	
Todaropsis eblanae	0.10	10	0.03	
Merluccius capensis female	0.00			53
Merluccius capensis male	0.00			52
Total	344.50		100.01	

PROJECT STATION: 12
 DATE: 29/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2904 Long E 1426
 start stop duration
 TIME : 09:31:00 10:17:00 46 (min) Purpose code: 3
 LOG : 2032.80 2035.40 2.60 Area code : 1
 FDEPTH: 420 416 GearCond.code: 8
 BDEPTH: 420 416 Validity code: 9
 Towing dir: 360° Wire out: 1400 m Speed: 32 kn*10

Sorted: 40 Kg Total catch: 168.74 CATCH/HOUR: 220.10

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Merluccius paradoxus	174.52	574	79.29	38
Malacocephalus laevis	10.96	689	4.98	
Epigonus pandionis	8.61	728	3.91	
Genypterus capensis	5.87	3	2.67	
Lophius upsicephalus	5.74	1	2.61	
Lepidopus caudatus	3.26	3	1.48	39
Raja caudaspinosa	2.48	3	1.13	
Coelorhynchus fasciatus	2.35	329	1.07	
Myxine capensis	2.35	55	1.07	
Rossia sp	1.57	63	0.71	
Bassonago albescens	0.91	1	0.41	
Centrolophus niger	0.78	1	0.35	
Helicolenus dactylopterus	0.39	21	0.18	
Hoplostethus mediterraneus	0.08	8	0.04	
Todaropsis eblanae	0.08	8	0.04	
Paracallionymus costatus	0.08	47	0.04	
Cynoglossus zanzibarensis	0.08	8	0.04	
Merluccius paradoxus female	0.00			37
Merluccius paradoxus male	0.00			36
Total	220.11		100.02	

PROJECT STATION: 17
 DATE: 29/1/90 GEAR TYPE: PT No:4 POSITION: Lat S 2833 Long E 1549
 start stop duration
 TIME : 23:55:00 00:25:00 30 (min) Purpose code: 1
 LOG : 2144.40 2145.70 1.30 Area code : 1
 FDEPTH: 5 5 GearCond.code: 8
 BDEPTH: 123 127 Validity code: 9
 Towing dir: 240° Wire out: 200 m Speed: 30 kn*10

Sorted: 22 Kg Total catch: 71.00 CATCH/HOUR: 142.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
MYCTOPHIDAE	60.00	184000	56.34	
Sepia australis	19.20	960	13.52	
Thyrsites atun	17.00	18	11.97	
Brama brama	15.60	8	10.99	
Merluccius capensis	4.60	46	3.24	
Scorpaenopsis japonicus	4.00	2	2.82	
Lepidopus caudatus	1.60	320	1.13	
Total	142.00		100.01	

PROJECT STATION: 13
 DATE: 29/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2903 Long E 1447
 start stop duration
 TIME : 14:15:00 14:45:00 30 (min) Purpose code: 3
 LOG : 2062.60 2064.50 1.90 Area code : 1
 FDEPTH: 207 219 GearCond.code: 8
 BDEPTH: 207 219 Validity code: 9
 Towing dir: 260° Wire out: 850 m Speed: 36 kn*10

Sorted: 52 Kg Total catch: 99.60 CATCH/HOUR: 199.20

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Merluccius capensis	55.80	54	14.76	44
Zeus faber	29.40	162	14.76	40
Helicolenus dactylopterus	28.00	154	14.06	42
Trachurus capensis	26.00	162	13.05	41
Loligo vulgaris	14.00	84	7.03	
Sepia australis	11.20	302	5.62	
Emmelichthys nitidus	9.60	204	4.92	43
Callorhynchus capensis	4.40	2	2.21	
Chelidonichthys capensis	2.00	4	1.00	
Lepidopus caudatus	2.00	2	1.00	
Holohalaelurus regani	1.80	4	0.90	
Todaropsis eblanae	1.40	22	0.70	
Todarodes sagittatus	1.40	8	0.70	
Genypterus capensis	1.40	2	0.70	
Cynoglossus zanzibarensis	0.60	6	0.30	
Merluccius capensis female	0.00			46
Merluccius capensis male	0.00			45
Total	199.20		99.90	

PROJECT STATION: 18
 DATE: 30/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2827 Long E 1558
 start stop duration
 TIME : 06:22:00 06:52:00 30 (min) Purpose code: 3
 LOG : 2157.40 2159.00 1.60 Area code : 1
 FDEPTH: 102 98 GearCond.code: 8
 BDEPTH: 102 98 Validity code: 9
 Towing dir: 360° Wire out: 450 m Speed: 30 kn*10

Sorted: 95 Kg Total catch: 1321.90 CATCH/HOUR: 2643.80

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Merluccius capensis	224.00	17280	83.74	54
Chelidonichthys capensis	319.60	1440	12.09	55
Callorhynchus capensis	108.00	134	4.09	
Janus lalandii	1.40	10	0.05	
Austroglossus microlepis	0.80	2	0.03	
Total	2643.80		100.00	

PROJECT STATION: 14
 DATE: 29/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2857 Long E 1502
 start stop duration
 TIME : 15:48:00 16:18:00 30 (min) Purpose code: 3
 LOG : 2063.80 2065.70 1.90 Area code : 1
 FDEPTH: 177 178 GearCond.code: 8
 BDEPTH: 177 178 Validity code: 9
 Towing dir: 330° Wire out: 800 m Speed: 38 kn*10

Sorted: 137 Kg Total catch: 191.74 CATCH/HOUR: 383.48

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Merluccius capensis	206.20	230	53.77	47
Chelidonichthys capensis	83.40	204	21.75	
Emmelichthys nitidus	26.40	1266	6.88	
Squalus megalops	25.80	78	6.73	
Sepia australis	18.00	1494	4.69	
Callorhynchus capensis	11.00	4	2.87	
Chelidonichthys queketti	6.60	30	1.72	
Holohalaelurus regani	1.80	6	0.67	
Sardinops ocellata	1.20	6	0.31	
Todaropsis eblanae	0.68	156	0.18	
Congloporus spinifer	0.60	2	0.16	
Cynoglossus zanzibarensis	0.60	12	0.16	
Zeus faber	0.60	12	0.16	
Todarodes sagittatus	0.60	12	0.16	
Merluccius capensis male	0.00			49
Merluccius capensis female	0.00			48
Total	383.48		100.01	

PROJECT STATION: 19
 DATE: 30/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2201 Long E 2817
 start stop duration
 TIME : 11:10:00 11:40:00 30 (min) Purpose code: 3
 LOG : 2200.90 2202.40 1.50 Area code : 1
 FDEPTH: 144 140 GearCond.code: 8
 BDEPTH: 144 140 Validity code: 9
 Towing dir: 330° Wire out: 600 m Speed: 30 kn*10

Sorted: 112 Kg Total catch: 166.88 CATCH/HOUR: 333.76

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP. NO.
Chelidonichthys capensis	54.80	330	25.41	
Merluccius capensis	76.80	262	23.01	55
Callorhynchus capensis	74.60	4	22.35	
Squalus megalops	28.70	70	8.60	
Callorhynchus capensis	18.20	14	5.45	
Raja clavata	18.00	12	5.39	
Muettellus palumbes	10.80	6	3.24	
Trachurus capensis	8.40	14	2.52	
Itirusus whiteheadi	5.60	64	1.68	
Loligo vulgaris	3.50	22	1.05	
Sardinops ocellata	1.40	8	0.42	
Helicolenus dactylopterus	0.90	14	0.27	
Zeus faber	0.90	22	0.27	
Todaropsis eblanae	0.80	22	0.24	
Sepia australis	0.36	28	0.11	
Merluccius capensis female	0.00			58
Merluccius capensis male	0.00			57
Total	333.76		100.01	

PROJECT STATION: 20
 DATE: 30/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2825 Long E 1508
 start stop duration
 TIME : 13:51:00 14:21:00 30 (min) Purpose code: 3
 LOG : 2222.30 2223.80 1.50 Area code : 1
 FDEPTH: 175 175 GearCond.code: 3
 BDEPTH: 175 175 Validity code:
 Towing dir: 350° Wire out: 700 m Speed: 31 kn*10
 Sorted: 76 Kg Total catch: 171.00 CATCH/HOUR: 342.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	162.40	472	47.49	59
Galeorhinus galeus	83.40	6	24.39	
Callorhynchus capensis	31.00	20	9.06	
Lophius upsicephalus	10.80	2	3.16	
Chelidonichthys capensis	9.60	30	2.81	
Mustelus palumbus	9.40	6	2.73	
Helicolenus dactylopterus	8.40	156	2.46	
Sepia australis	6.00	414	1.75	
Emmelichthys nitidus	4.80	6	1.40	
Etrumeus whiteheadi	4.20	60	1.23	
Zeus faber	3.60	96	1.05	
Trachurus capensis	2.40	6	0.76	
Cynoglossus zanzibarensis	1.60	4	0.47	
Holohalaelurus regani	1.20	8	0.35	
Squalus megalops	1.20	8	0.35	
Todaropsis eblanæ	0.18	12	0.05	
Congloporus spinifer	0.18	6	0.05	
Loligo vulgaris	0.12	6	0.04	
Lepidopus caudatus	0.06	6	0.02	
Paracallionymus costatus	0.06	6	0.02	
Merluccius capensis female	0.00			61
Merluccius capensis male	0.00			60
Total	342.00		100.01	

PROJECT STATION: 21
 DATE: 30/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2830 Long E 1453
 start stop duration
 TIME : 16:20:00 16:50:00 30 (min) Purpose code: 3
 LOG : 2242.00 2243.60 1.60 Area code : 1
 FDEPTH: 181 181 GearCond.code: 3
 BDEPTH: 181 181 Validity code:
 Towing dir: 5° Wire out: 800 m Speed: 33 kn*10
 Sorted: 133 Kg Total catch: 294.23 CATCH/HOUR: 588.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Lepidopus caudatus	320.00	3120	54.38	
Trachurus capensis	134.00	344	22.77	66
Merluccius capensis	87.80	86	14.92	62
Chelidonichthys capensis	14.40	48	2.43	
Sepia australis	9.60	1072	1.63	
Loligo vulgaris	8.00	48	1.36	
Merluccius capensis juveniles	6.40	1152	1.09	65
Todarodes sagittatus	3.20	16	0.54	
Thyrastes atun	3.00	2	0.51	
Todaropsis eblanæ	0.80	64	0.14	
Paracallionymus costatus	0.60	112	0.10	
Helicolenus dactylopterus	0.50	64	0.08	
Emmelichthys nitidus	0.10	10	0.03	
Merluccius capensis female	0.00			64
Merluccius capensis male	0.00			63
Total	588.46		100.00	

PROJECT STATION: 22
 DATE: 30/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2842 Long E 1439
 start stop duration
 TIME : 19:20:00 19:50:00 30 (min) Purpose code: 3
 LOG : 2269.00 2270.50 1.50 Area code : 1
 FDEPTH: 173 174 GearCond.code: 3
 BDEPTH: 173 174 Validity code:
 Towing dir: 360° Wire out: 750 m Speed: 30 kn*10
 Sorted: 129 Kg Total catch: 362.29 CATCH/HOUR: 724.58

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Emmelichthys nitidus	352.00	23228	48.58	72
Merluccius capensis	135.00	98	18.63	70
Zeus faber	104.00	672	14.35	71
Lophius upsicephalus	46.00	10	6.35	
Loligo vulgaris	24.00	128	3.31	
Scyllorhinus capensis	24.00	48	3.31	
Thyrastes atun	18.20	18	2.51	67
Scomber japonicus	12.20	12	1.68	
Trachurus capensis	4.00	16	0.55	
Lepidopus caudatus	3.20	16	0.44	
Sepia australis	2.00	96	0.28	
Congloporus spinifer	0.90	2	0.12	
Todaropsis eblanæ	0.32	16	0.04	
Merluccius capensis female	0.00			69
Merluccius capensis male	0.00			68
Total	724.58		100.15	

PROJECT STATION: 23
 DATE: 30/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2843 Long E 1426
 start stop duration
 TIME : 21:44:00 22:44:00 60 (min) Purpose code: 3
 LOG : 2286.80 2289.90 3.10 Area code : 1
 FDEPTH: 331 334 GearCond.code: 8
 BDEPTH: 331 334 Validity code: 3
 Towing dir: 350° Wire out: 1050 m Speed: 31 kn*10
 Sorted: 79 Kg Total catch: 175.90 CATCH/HOUR: 175.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Helicolenus dactylopterus	49.00	195	27.86	
Caelorhynchus fasciatus	37.50	961	21.32	
Gonypterus capensis	30.40	11	17.28	73
Merluccius capensis	26.10	68	14.84	74
Epigonus pandionis	25.00	570	14.21	
Lophius upsicephalus	3.80	1	2.16	
Cynoglossus zanzibarensis	1.50	25	0.85	
Malacocephalus laevis	1.50	25	0.85	
Shrimps, small, non comm.	1.00	210	0.57	
Tripterygion liliaceum	0.10	5	0.06	
Merluccius capensis female	0.00			76
Merluccius capensis male	0.00			75
Total	175.90		100.00	

PROJECT STATION: 24
 DATE: 31/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2825 Long E 1436
 start stop duration
 TIME : 09:20:00 09:50:00 30 (min) Purpose code: 3
 LOG : 2342.80 2344.30 1.50 Area code : 1
 FDEPTH: 166 167 GearCond.code: 3
 BDEPTH: 166 167 Validity code:
 Towing dir: 360° Wire out: 700 m Speed: 30 kn*10
 Sorted: 84 Kg Total catch: 108.25 CATCH/HOUR: 216.50

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	109.40	104	50.53	77
Loligo vulgaris	23.20	132	10.72	
Emmelichthys nitidus	14.00	442	6.47	
Helicolenus dactylopterus	12.00	48	5.54	
Trachurus capensis	10.80	52	4.99	
Chelidonichthys capensis	9.60	6	4.43	
Raja caudaspinosa	9.40	2	4.34	
Thyrastes atun	6.60	8	3.05	
Zeus faber	6.00	20	2.77	
Chelidonichthys queketti	4.80	20	2.22	
Holohalaelurus regani	4.60	12	2.12	
Sepia australis	3.20	132	1.48	
Todaropsis eblanæ	1.20	12	0.55	
Todarodes sagittatus	0.80	4	0.37	
Scyllorhinus capensis	0.70	2	0.32	
Lepidopus caudatus	0.20	4	0.09	
Merluccius capensis female	0.00			79
Merluccius capensis male	0.00			78
Total	216.50		99.99	

PROJECT STATION: 25
 DATE: 31/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2814 Long E 1428
 start stop duration
 TIME : 12:05:00 12:35:00 30 (min) Purpose code: 3
 LOG : 2363.70 2365.20 1.50 Area code : 1
 FDEPTH: 197 198 GearCond.code: 3
 BDEPTH: 197 198 Validity code:
 Towing dir: 360° Wire out: 750 m Speed: 33 kn*10
 Sorted: 29 Kg Total catch: 95.10 CATCH/HOUR: 190.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Lepidopus caudatus	129.60	198	68.14	
Merluccius capensis	30.00	48	15.77	61
Todarodes sagittatus	16.00	16	8.41	
Trachurus capensis	4.60	20	2.42	60
Todaropsis eblanæ	3.20	32	1.68	
Etrumeus whiteheadi	3.00	26	1.58	
Thyrastes atun	3.00	2	1.58	
Zeus faber	0.40	6	0.21	
Emmelichthys nitidus	0.20	2	0.11	
Helicolenus dactylopterus	0.02	2	0.01	
Merluccius capensis female	0.00			63
Merluccius capensis male	0.00			62
Total	190.02		99.31	

PROJECT STATION: 26
 DATE: 31/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2827 Long E 1448
 start stop duration
 TIME : 14:27:00 14:57:00 30 (min) Purpose code: 3
 LOG : 2383.20 2384.70 1.50 Area code : 1
 FDEPTH: 187 189 GearCond.code: 3
 BDEPTH: 187 189 Validity code:
 Towing dir: 345° Wire out: 750 m Speed: 33 kn*10
 Sorted: 25 Kg Total catch: 95.86 CATCH/HOUR: 191.72

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Lepidopus caudatus	126.00	882	65.72	
Todarodes sagittatus	27.00	180	14.08	
Merluccius capensis male	22.20	34	11.58	64
Etrumeus whiteheadi	7.00	100	3.65	
Trachurus capensis	5.00	36	2.61	
Thyrastes atun	2.40	2	1.25	
Lophius upsicephalus	1.40	2	0.73	
Todaropsis eblanæ	0.36	54	0.19	
Paracallionymus costatus	0.18	36	0.09	
Sepia australis	0.18	54	0.09	
Merluccius capensis female	0.00			66
Merluccius capensis male	0.00			65
Total	191.72		99.99	

PROJECT STATION: 27
 DATE: 31/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2842 Long E 1431
 start stop duration
 TIME : 18:06:00 18:36:00 30 (min) Purpose code: 3
 LOG : 2415.30 2417.20 1.90 Area code : 1
 FDEPTH: 190 190 GearCond.code: 3
 BDEPTH: 190 190 Validity code:
 Towing dir: 330° Wire out: 750 m Speed: 38 kn*10
 Sorted: 146 Kg Total catch: 1533.35 CATCH/HOUR: 3066.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Zeus faber	1430.00	4888	46.63	90
Emmelichthys nitidus	1222.00	4524	39.85	91
Merluccius capensis	170.00	132	5.57	89
Lepidopus caudatus	130.00	208	4.24	
Trachurus capensis	98.80	156	3.22	
Congloporus spinifer	5.00	8	0.16	
Polyprion americanus	4.30	2	0.14	
Chelidonichthys queketti	2.60	52	0.08	
Scyllorhinus capensis	2.40	4	0.08	
Todaropsis eblanæ	0.80	52	0.03	
Merluccius capensis male	0.00			88
Merluccius capensis female	0.00			87
Total	3066.70		100.00	

PROJECT STATION: 28
 DATE: 3/1/90 GEAR TYPE: BT No:1 POSITION: Lat S 2641 Long E 1427
 start stop duration
 TIME :20:08:00 20:38:00 30 (min) Purpose code: 3
 LOG :2427.10 2428.50 1.40 Area code : 1
 FDEPTH: 295 305 GearCond.code:
 BDEPTH: 295 305 Validity code:
 Towing dir: 360° Wire out: 1100 m Speed: 28 kn*10
 Sorted: 80 Kg Total catch: 80.12 CATCH/HOUR: 160.24

PROJECT STATION: 33
 DATE: 1/2/90 GEAR TYPE: PT No:4 POSITION: Lat S 2732 Long E 1515
 start stop duration
 TIME :23:01:00 23:31:00 30 (min) Purpose code: 1
 LOG :2637.90 2638.90 1.00 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 122 119 Validity code:
 Towing dir: 40° Wire out: 200 m Speed: 20 kn*10
 Sorted: 70 Kg Total catch: 656.21 CATCH/HOUR: 1312.42

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius paradoxus	134.60	210	84.00	94
Epigonus pandionis	14.40	330	8.99	
Helicolenus dactylopterus	5.20	24	2.00	
Zeus faber	3.00	8	1.87	
Holohlaelurus regani	2.20	10	1.37	
Squalus megalops	1.80	2	1.12	
Malacocephalus laevis	1.00	10	0.62	
Coelorhynchus fasciatus	0.04	2	0.02	
MYXINIDAE	0.00	4		
Merluccius paradoxus male	0.00			93
Merluccius paradoxus female	0.00			92
Total	160.24		99.99	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Etrumeus whiteheadi	1184.40	14900	90.25	112
Galeorhinus galeus	81.40	4	8.20	
Sardinops ocellata	25.70	210	1.92	
Thyrssites atun	21.00	126	1.60	
Sepia australis	0.42	84	0.03	
Total	1312.42		100.00	

PROJECT STATION: 29
 DATE: 1/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2804 Long E 1500
 start stop duration
 TIME :08:23:00 09:06:00 33 (min) Purpose code: 3
 LOG :2517.80 2519.80 1.80 Area code : 1
 FDEPTH: 184 187 GearCond.code:
 BDEPTH: 184 187 Validity code:
 Towing dir: 350° Wire out: 750 m Speed: 25 kn*10
 Sorted: 121 Kg Total catch: 446.90 CATCH/HOUR: 812.55

PROJECT STATION: 34
 DATE: 2/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2754 Long E 1447
 start stop duration
 TIME :06:54:00 07:54:00 60 (min) Purpose code: 3
 LOG :2688.30 2690.90 2.60 Area code : 1
 FDEPTH: 310 295 GearCond.code:
 BDEPTH: 310 295 Validity code:
 Towing dir: 50° Wire out: 1000 m Speed: 32 kn*10
 Sorted: Kg Total catch: 145.65 CATCH/HOUR: 145.65

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachurus capensis	220.18	1056	35.71	101
Emmelichthys nitidus	280.00	458	34.46	100
Merluccius capensis juveniles	102.09	916	12.69	99
Merluccius capensis	76.91	102	9.47	57
Thyrssites atun	40.00	35	4.92	98
Sufflogobius bibarbatus	8.91	1800	1.10	
Etrumeus whiteheadi	8.91	89	1.10	
Scomber japonicus	5.09	4	0.62	
Helicolenus dactylopterus	2.55	89	0.31	
Merluccius capensis female	0.00			96
Merluccius capensis male	0.00			95
Total	815.64		100.39	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius paradoxus	99.00	314	67.97	113
Todarodes sagittatus	11.90	23	8.17	
Gerypterus capensis	11.00	7	7.55	
Helicolenus dactylopterus	9.50	71	6.52	
Coelorhynchus fasciatus	5.00	52	3.43	
MYCTOPHIDAE	4.32	778	2.97	
Squalus megalops	1.90	2	1.30	
Sepia australis	1.08	32	0.74	
Lepidopus caudatus	0.80	9	0.56	
Emmelichthys nitidus	0.40	1	0.27	
Apristurus sp.	0.30	2	0.21	
Notacanthus sexspinis	0.20	3	0.14	
Trachurus capensis	0.15	1	0.10	
Squilla sp.	0.05	11	0.03	
Epigonus pandionis	0.05	21	0.03	
Merluccius paradoxus female	0.00			115
Merluccius paradoxus male	0.00			114
Total	145.65		99.96	

PROJECT STATION: 30
 DATE: 1/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2801 Long E 1532
 start stop duration
 TIME :13:22:00 13:52:00 30 (min) Purpose code: 3
 LOG :2559.20 2560.70 1.50 Area code : 1
 FDEPTH: 86 85 GearCond.code:
 BDEPTH: 86 85 Validity code:
 Towing dir: 350° Wire out: 400 m Speed: 30 kn*10
 Sorted: 22 Kg Total catch: 44.10 CATCH/HOUR: 88.20

PROJECT STATION: 35
 DATE: 2/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2742 Long E 1446
 start stop duration
 TIME :10:06:00 10:44:00 38 (min) Purpose code: 3
 LOG :2702.40 2704.70 2.30 Area code : 1
 FDEPTH: 370 374 GearCond.code:
 BDEPTH: 370 374 Validity code:
 Towing dir: 150° Wire out: 1250 m Speed: 36 kn*10
 Sorted: 50 Kg Total catch: 756.42 CATCH/HOUR: 1194.35

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Krill	43.20		49.99	
Merluccius capensis	35.60	388	44.90	102
MYXINIDAE	5.40	1566	6.12	
Merluccius capensis female	0.00			104
Merluccius capensis male	0.00			103
Total	88.20		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius paradoxus	1017.79	7503	85.22	118
Krill	114.83	17545	9.60	
MYCTOPHIDAE	31.95	20239	2.68	
Todarodes sagittatus	9.95	16	0.63	
Octopus vulgaris	7.11	2	0.60	
Gerypterus capensis	6.16	2	0.52	
Brama brama	3.63	2	0.30	
Epigonus pandionis	2.78	174	0.23	
Paracallionyx costatus	0.35	35	0.03	
Total	1194.36		100.01	

PROJECT STATION: 31
 DATE: 1/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2744 Long E 1520
 start stop duration
 TIME :17:18:00 17:48:00 30 (min) Purpose code: 3
 LOG :2591.10 2592.80 1.70 Area code : 1
 FDEPTH: 124 129 GearCond.code:
 BDEPTH: 124 129 Validity code:
 Towing dir: 198° Wire out: 500 m Speed: 33 kn*10
 Sorted: 42 Kg Total catch: 42.65 CATCH/HOUR: 85.30

PROJECT STATION: 36
 DATE: 2/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2738 Long E 1458
 start stop duration
 TIME :12:55:00 13:25:00 30 (min) Purpose code: 3
 LOG :2722.70 2724.30 1.60 Area code : 1
 FDEPTH: 235 243 GearCond.code:
 BDEPTH: 235 243 Validity code:
 Towing dir: 20° Wire out: 800 m Speed: 28 kn*10
 Sorted: 63 Kg Total catch: 444.00 CATCH/HOUR: 889.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	46.80	442	54.87	106
Galeorhinus galeus	32.20	2	37.75	
Loligo vulgaris	4.20	20	4.92	
Chelidonichthys capensis	0.80	2	0.94	
Auetrogllossus microlepis	0.60	2	0.70	
Etrumeus whiteheadi	0.60	8	0.70	
Sufflogobius bibarbatus	0.10	18	0.12	
Merluccius capensis female	0.00			108
Merluccius capensis male	0.00			107
Total	85.30		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	631.60	5404	92.65	119
Todarodes sagittatus	19.40	30	2.18	
Brama brama	19.00	12	2.14	
Lepidopus caudatus	6.60	44	0.74	
Chelidonichthys capensis	4.40	8	0.50	
Mustellus putorius	4.00	2	0.45	
Callorhynchus capensis	3.00	2	0.34	
Merluccius capensis female	0.00			121
Merluccius capensis male	0.00			120
Total	688.00		100.00	

PROJECT STATION: 32
 DATE: 1/2/90 GEAR TYPE: BT No:1 POSITION: Lat 2731 Long 1520
 start stop duration
 TIME :20:15:00 20:45:00 30 (min) Purpose code: 3
 LOG :2618.00 2619.40 1.40 Area code : 1
 FDEPTH: 90 99 GearCond.code:
 BDEPTH: 90 99 Validity code:
 Towing dir: 340° Wire out: 450 m Speed: 28 kn*10
 Sorted: 35 Kg Total catch: 54.76 CATCH/HOUR: 109.52

PROJECT STATION: 37
 DATE: 2/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2727 Long E 1502
 start stop duration
 TIME :15:08:00 15:28:00 30 (min) Purpose code: 3
 LOG :2739.60 2741.40 1.80 Area code : 1
 FDEPTH: 184 184 GearCond.code:
 BDEPTH: 184 184 Validity code:
 Towing dir: 25° Wire out: 650 m Speed: 35 kn*10
 Sorted: 33 Kg Total catch: 885.60 CATCH/HOUR: 1771.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	64.00	432	58.44	109
Galeorhinus galeus	30.60	2	27.94	
Callorhynchus capensis	3.40	2	3.10	
Trachurus capensis	3.20	40	2.92	
Chelidonichthys capensis	3.20	40	2.92	
MYCTOPHIDAE	2.60	780	2.37	
Thyrssites atun	2.00	4	1.83	
Sepia australis	0.40	16	0.37	
Gerypterus capensis	0.08	4	0.07	
Sufflogobius bibarbatus	0.04	4	0.04	
Merluccius capensis female	0.00			111
Merluccius capensis male	0.00			110
Total	109.52		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	1736.00	11036	98.01	
Todarodes sagittatus	24.80	62	1.40	
Chelidonichthys capensis	10.40	28	0.59	
Merluccius capensis male	0.00			122
Total	1771.20		100.00	

PROJECT STATION: 38
 DATE: 2/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2724 Long E 1450
 start stop duration
 TIME :17:01:00 17:41:00 40 (min) Purpose code: 3
 LOG :2753.50 2755.50 2.00 Area code : 1
 FDEPTH: 284 284 GearCond.code:
 BDEPTH: 284 284 Validity code:
 Towing dir: 350° Wire out: 900 m Speed: 30 kn*10

Sorted: 127 Kg Total catch: 417.66 CATCH/HOUR: 626.49

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	385.20 2904	61.49	124
Todarodes sagittatus	86.25 208	13.77	
Gerypteris capensis	51.90 81	8.28	123
Squilla sp	49.50 2769	7.90	
MYCTOPHIDAE	39.60 11880	6.32	
Raja clavata	11.40 17	1.82	
Coelorinchus fasciatus	0.99 297	0.16	
Austrognathus microlepis	0.90 2	0.14	
Lophius upsicephalus	0.75 2	0.12	
Total	626.49	100.00	

PROJECT STATION: 39
 DATE: 2/ 2/90 GEAR TYPE: PT No:2 POSITION:Lat S 2719 Long E 1453
 start stop duration
 TIME :18:49:00 19:37:00 48 (min) Purpose code: 1
 LOG :2761.10 2762.90 1.80 Area code : 1
 FDEPTH: 60 150 GearCond.code:
 BDEPTH: 235 230 Validity code:
 Towing dir: 340° Wire out: 150 m Speed: 25 kn*10

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
N O C A T C H	0.00		
Total			

PROJECT STATION: 44
 DATE: 3/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2645 Long E 1450
 start stop duration
 TIME :16:31:00 17:01:00 30 (min) Purpose code: 3
 LOG :2898.00 2899.90 1.90 Area code : 1
 FDEPTH: 165 163 GearCond.code:
 BDEPTH: 165 163 Validity code:
 Towing dir: 360° Wire out: 650 m Speed: 35 kn*10

Sorted: 2 Kg Total catch: 37.40 CATCH/HOUR: 74.60

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	70.40 5016	94.12	129
Sufflogobius bibarbatu	4.40 264	5.88	
MYCTOPHIDAE	0.00 308		
Total	74.80	100.00	

PROJECT STATION: 45
 DATE: 4/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2637 Long E 1440
 start stop duration
 TIME :14:34:00 15:04:00 30 (min) Purpose code: 3
 LOG :2953.90 2955.80 1.90 Area code : 1
 FDEPTH: 202 199 GearCond.code:
 BDEPTH: 202 199 Validity code:
 Towing dir: 360° Wire out: 700 m Speed: 36 kn*10

Sorted: 14 Kg Total catch: 14.60 CATCH/HOUR: 29.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	27.60 328	95.21	130
Sufflogobius bibarbatu	1.40 80	4.79	
MYCTOPHIDAE	0.00 60		
Merluccius capensis female	0.00		132
Merluccius capensis male	0.00		131
Total	29.20	100.00	

PROJECT STATION: 46
 DATE: 4/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2639 Long E 1432
 start stop duration
 TIME :17:20:00 17:50:00 30 (min) Purpose code: 3
 LOG :2976.80 2978.40 1.60 Area code : 1
 FDEPTH: 323 321 GearCond.code:
 BDEPTH: 323 321 Validity code:
 Towing dir: 340° Wire out: 1000 m Speed: 34 kn*10

Sorted: 95 Kg Total catch: 105.78 CATCH/HOUR: 211.56

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius paradoxus	131.30 394	61.97	133
Gerypteris capensis	45.20 32	21.37	
Helicolenus dactylopterus	15.00 24	7.09	
MYCTOPHIDAE	10.00 9150	4.73	
Krill	3.76	1.78	
Coelorinchus fasciatus	3.00 20	1.42	
Sufflogobius bibarbatu	2.50 150	1.18	
Callinectes sp	1.00 10	0.47	
Merluccius paradoxus female	0.00		135
Merluccius paradoxus male	0.00		134
Total	211.36	100.00	

PROJECT STATION: 41
 DATE: 3/ 2/90 GEAR TYPE: PT No:2 POSITION:Lat S 2637 Long E 1445
 start stop duration
 TIME :09:40:00 09:55:00 15 (min) Purpose code: 1
 LOG :2849.60 2850.30 0.70 Area code : 1
 FDEPTH: 70 70 GearCond.code:
 BDEPTH: 230 227 Validity code:
 Towing dir: 360° Wire out: 175 m Speed: 28 kn*10

Sorted: 24 Kg Total catch: 10033.00 CATCH/HOUR: 40132.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Leapanycodes hectoris	40005.00 18434780	99.67	128
Thysanites atun	134.40 48	0.33	
Total	40134.40	100.00	

PROJECT STATION: 47
 DATE: 4/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2638 Long E 1411
 start stop duration
 TIME :19:39:00 20:09:00 30 (min) Purpose code: 3
 LOG :2993.70 2995.70 2.00 Area code : 1
 FDEPTH: 375 375 GearCond.code:
 BDEPTH: 375 375 Validity code:
 Towing dir: 340° Wire out: 1150 m Speed: 40 kn*10

Sorted: 32 Kg Total catch: 199.65 CATCH/HOUR: 399.30

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius paradoxus	375.90 1652	94.14	136
Todarodes sagittatus	3.40 44	2.35	
Nezumia sp	5.60 196	1.40	
MYCTOPHIDAE	3.22 1316	0.81	
Hoplostethus melanopus	1.40 28	0.35	
Plesionika sp	0.70 196	0.18	
Diplodus maderensis	0.70 28	0.18	
Callinectes sp	0.56 28	0.14	
Squilla sp	0.42 28	0.11	
Helicolenus dactylopterus	0.14 28	0.06	
Merluccius paradoxus female	0.00		138
Merluccius paradoxus male	0.00		137
Total	398.04	99.70	

PROJECT STATION: 42
 DATE: 3/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2655 Long E 1448
 start stop duration
 TIME :11:03:00 11:33:00 30 (min) Purpose code: 3
 LOG :2856.80 2858.70 1.90 Area code : 1
 FDEPTH: 200 197 GearCond.code:
 BDEPTH: 200 197 Validity code:
 Towing dir: 360° Wire out: 750 m Speed: 38 kn*10

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Total			

PROJECT STATION: 48
 DATE: 4/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2648 Long E 1346
 start stop duration
 TIME :23:55:00 00:55:00 60 (min) Purpose code: 3
 LOG :3027.60 3030.90 3.30 Area code : 1
 FDEPTH: 512 515 GearCond.code:
 BDEPTH: 512 515 Validity code:
 Towing dir: 335° Wire out: 1500 m Speed: 35 kn*10

Sorted: 74 Kg Total catch: 158.10 CATCH/HOUR: 158.10

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Dania calcea	62.20 36	51.99	
Merluccius paradoxus	39.60 61	25.05	139
Todarodes sagittatus	20.40 64	12.90	
Lophius upsicephalus	5.10 1	3.23	
Coelorinchus fasciatus	4.00 108	2.53	
Hoplostethus melanopus	2.80 172	1.77	
MYCTOPHIDAE	1.60 104	1.01	
Diplodus maderensis	0.80 24	0.51	
Physiculus capensis	0.80 12	0.51	
S H R I M P S	0.40 48	0.25	
Notacanthus mexpinis	0.40 12	0.25	
Merluccius paradoxus female	0.00		141
Merluccius paradoxus male	0.00		140
Total	158.10	100.00	

PROJECT STATION: 43
 DATE: 3/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2655 Long E 1459
 start stop duration
 TIME :13:37:00 14:07:00 30 (min) Purpose code: 3
 LOG :2874.70 2876.60 1.90 Area code : 1
 FDEPTH: 134 132 GearCond.code:
 BDEPTH: 134 132 Validity code:
 Towing dir: 360° Wire out: 500 m Speed: 35 kn*10

Sorted: 1 Kg Total catch: 9.60 CATCH/HOUR: 19.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Sufflogobius bibarbatu	16.80 888	87.50	
Merluccius capensis	2.40 72	12.50	
Total	19.20	100.00	

PROJECT STATION: 49
 DATE: 5/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat 2628
 start stop duration Long 1339
 TIME :06:51:00 07:51:00 60 (min) Purpose code: 3
 LOG :3053.90 3057.10 3.20 Area code : 1
 FDEPTH: 510 510 GearCond.code:
 BDEPTH: 510 510 Validity code:
 Towing dir: 350° Wire out:1500 m Speed: 32 kn*10
 Sorted: 75 Kg Total catch: 108.34 CATCH/HOUR: 108.34

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius paradoxus	40.50	61	37.98	142
Nezumia sp	1.25	820	28.84	
Todarodes sagittatus	15.00	35	13.85	
Deania calcea	8.00	6	7.38	
Hoplostethus melanopus	3.75	87	3.46	
Selachophidium guentheri	2.90	47	2.68	
Schedophilus huttoni	2.60	2	2.40	
Centroscyllium crepidater	1.46	1	1.35	
Coelorinchus sp	1.05	23	0.97	
CONGOSTOMATIDAE	0.93	45	0.86	
Beryx splendens	0.50	2	0.46	
Coelorinchus polli	0.38	2	0.35	
Ebinania costaeconarie	0.08	2	0.07	
Merluccius paradoxus female	0.00			144
Merluccius paradoxus male	0.00			143
Total	108.40		100.05	

PROJECT STATION: 54
 DATE: 6/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2559
 start stop duration Long E 1347
 TIME :09:41:00 10:11:00 30 (min) Purpose code: 3
 LOG :3239.10 3240.80 1.70 Area code : 1
 FDEPTH: 410 410 GearCond.code:
 BDEPTH: 410 410 Validity code:
 Towing dir: 10° Wire out:1200 m Speed: 34 kn*10
 Sorted: 86 Kg Total catch: 116.80 CATCH/HOUR: 233.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius paradoxus	99.40	16	42.55	155
Hoplostethus melanopus	81.60	5916	34.93	
Helicolenus dactylopterus	22.80	100	9.76	
Raja caudaspinosa	11.60	6	4.97	
Coelorinchus fasciatus	4.80	44	2.05	
Nezumia sp	3.60	76	1.54	
Notacanthus hexspinis	2.60	76	1.11	
Todarodes sagittatus	2.00	2	0.86	
Krill	1.80	148	0.77	
MYCTOPHIDAE	1.60	268	0.68	
Etmopterus spinax	1.20	2	0.51	
Galeus polli	0.60	68	0.26	
Merluccius paradoxus female	0.00			157
Merluccius paradoxus male	0.00			156
Total	233.60		99.99	

PROJECT STATION: 50
 DATE: 5/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2628
 start stop duration Long E 1352
 TIME :11:05:00 11:35:00 30 (min) Purpose code: 3
 LOG :3078.30 3079.80 1.50 Area code : 1
 FDEPTH: 403 403 GearCond.code:
 BDEPTH: 403 403 Validity code:
 Towing dir: 340° Wire out:1200 m Speed: 30 kn*10
 Sorted: 72 Kg Total catch: 101.70 CATCH/HOUR: 203.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius paradoxus	124.60	286	61.26	145
Hoplostethus melanopus	32.80	1842	16.13	
Todarodes sagittatus	16.80	112	8.26	
Nezumia sp	7.20	152	3.54	
MYCTOPHIDAE	6.00	1454	3.95	
Coelorinchus fasciatus	4.00	32	1.97	
Krill	3.60	2208	1.77	
Helicolenus dactylopterus	3.20	158	1.57	
CONGOSTOMATIDAE	1.60	88	0.79	
Selachophidium guentheri	1.60	32	0.79	
Ebinania costaeconarie	0.80	24	0.39	
Diplophus maderensis	0.80	24	0.39	
Epigonus pandionis	0.24	8	0.12	
Coelorinchus polli	0.16	8	0.08	
S M R I M P S	0.00	16		
Merluccius paradoxus female	0.00			147
Merluccius paradoxus male	0.00			146
Total	203.40		100.01	

PROJECT STATION: 55
 DATE: 6/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2552
 start stop duration Long E 1361
 TIME :15:10:00 15:40:00 30 (min) Purpose code: 3
 LOG :3281.90 3283.50 1.60 Area code : 1
 FDEPTH: 362 359 GearCond.code:
 BDEPTH: 362 359 Validity code:
 Towing dir: 350° Wire out:1050 m Speed: 32 kn*10
 Sorted: 52 Kg Total catch: 52.44 CATCH/HOUR: 104.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Helicolenus dactylopterus	36.40	102	34.71	160
Merluccius paradoxus	30.00	30	28.60	158
Todarodes sagittatus	20.80	60	19.83	
Genypterus capensis	12.20	4	11.63	
Hoplostethus melanopus	2.20	36	2.10	
Coelorinchus polli	1.00	32	0.95	
MYCTOPHIDAE	0.60	108	0.57	
Galeus polli	0.60	4	0.57	
Krill	0.50	56	0.48	
Beryx splendens	0.40	2	0.38	
Notacanthus hexspinis	0.10	2	0.10	
Epigonus pandionis	0.08	2	0.08	
Merluccius paradoxus female	0.00			159
Total	104.88		100.00	

PROJECT STATION: 51
 DATE: 5/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2622
 start stop duration Long E 1407
 TIME :15:01:00 15:31:00 30 (min) Purpose code: 3
 LOG :3192.40 3193.20 1.50 Area code : 1
 FDEPTH: 250 250 GearCond.code:
 BDEPTH: 250 250 Validity code:
 Towing dir: 350° Wire out:1050 m Speed: 32 kn*10
 Sorted: 69 Kg Total catch: 85.80 CATCH/HOUR: 171.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius paradoxus	121.20	472	70.63	148
Todarodes sagittatus	21.60	36	12.59	
Helicolenus dactylopterus	16.80	156	9.79	
Coelorinchus fasciatus	7.20	48	4.20	
MYCTOPHIDAE	3.00	756	1.75	
Sufflogobius bibarbatus	1.20	32	0.70	
Hoplostethus melanopus	0.60	24	0.35	
Merluccius paradoxus female	0.00			150
Merluccius paradoxus male	0.00			149
Total	171.60		100.01	

PROJECT STATION: 56
 DATE: 6/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2540
 start stop duration Long E 1404
 TIME :17:29:00 17:59:00 30 (min) Purpose code: 3
 LOG :3299.20 3300.70 1.50 Area code : 1
 FDEPTH: 268 263 GearCond.code:
 BDEPTH: 268 263 Validity code:
 Towing dir: 360° Wire out: 850 m Speed: 33 kn*10
 Sorted: 23 Kg Total catch: 69.48 CATCH/HOUR: 138.96

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	128.40	600	52.40	161
Sufflogobius bibarbatus	5.40	978	3.89	
Callinectes sp	2.10	96	1.51	
Lepidus upiscephalus	1.00	4	0.72	
Todarodes sagittatus	0.80	2	0.58	
Helicolenus dactylopterus	0.66	8	0.47	
Austrogobius maculatus	0.60	2	0.43	
Parapenaeus longirostris	0.00	6		
Merluccius capensis female	0.00			163
Merluccius capensis male	0.00			162
Total	138.96		100.00	

PROJECT STATION: 52
 DATE: 5/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2641
 start stop duration Long E 1418
 TIME :17:41:00 18:11:00 30 (min) Purpose code: 3
 LOG :3122.20 3123.50 1.30 Area code : 1
 FDEPTH: 302 296 GearCond.code:
 BDEPTH: 302 296 Validity code:
 Towing dir: 340° Wire out:1000 m Speed: 27 kn*10
 Sorted: 19 Kg Total catch: 108.12 CATCH/HOUR: 216.24

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	134.00	768	61.97	151
Sufflogobius bibarbatus	76.80	3380	35.52	
MYCTOPHIDAE	3.20	768	1.48	
Squilla sp	2.24	64	1.04	
Merluccius capensis female	0.00			153
Merluccius capensis male	0.00			152
Total	216.24		100.01	

PROJECT STATION: 57
 DATE: 6/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2540
 start stop duration Long E 1339
 TIME :21:15:00 22:00:00 45 (min) Purpose code: 3
 LOG :3332.70 3334.70 2.00 Area code : 1
 FDEPTH: 448 452 GearCond.code:
 BDEPTH: 448 452 Validity code:
 Towing dir: 360° Wire out:1250 m Speed: 30 kn*10
 Sorted: 73 Kg Total catch: 87.68 CATCH/HOUR: 116.91

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Todarodes sagittatus	54.67	149	46.76	
Hoplostethus melanopus	16.27	221	13.92	
Merluccius paradoxus	15.07	20	12.89	
Raja caudaspinosa	9.47	4	8.10	
Nezumia sp	5.60	91	4.79	
Helicolenus dactylopterus	5.33	27	4.56	
CONGOSTOMATIDAE	3.73	427	3.19	
Deania calcea	3.07	4	2.63	
MYCTOPHIDAE	1.23	493	1.14	
Selachophidium guentheri	0.91	32	0.78	
Shrimps, small, non comm.	0.40	293	0.34	
Diplophus maderensis	0.40	40	0.34	
Etmopterus spinax	0.40	1	0.34	
Notacanthus hexspinis	0.27	8	0.23	
Merluccius paradoxus female	0.00			164
Total	116.92		100.01	

PROJECT STATION: 59
 DATE: 5/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat 2614
 start stop duration Long 1424
 TIME :19:35:00 20:05:00 30 (min) Purpose code: 3
 LOG :3134.80 3136.30 1.50 Area code : 1
 FDEPTH: 212 210 GearCond.code:
 BDEPTH: 212 210 Validity code:
 Towing dir: 350° Wire out: 760 m Speed: 30 kn*10
 Sorted: 17 Kg Total catch: 87.25 CATCH/HOUR: 174.50

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	114.50	1040	65.67	154
Sufflogobius bibarbatus	60.00	8624	34.38	
Total	174.50		100.00	

PROJECT STATION: 58
 DATE: 7/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2542
 start stop duration Long E 1419
 TIME :06:51:00 07:21:00 30 (min) Purpose code: 3
 LOG :3383.70 3385.30 1.60 Area code : 1
 FDEPTH: 198 195 GearCond.code:
 BDEPTH: 198 195 Validity code:
 Towing dir: 340° Wire out: 700 m Speed: 32 kn*10
 Sorted: 21 Kg Total catch: 304.78 CATCH/HOUR: 609.56

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	529.20	6048	86.82	165
Sufflogobius bibarbatus	75.60	6888	12.40	
MYCTOPHIDAE	4.76	2600	0.78	
Merluccius capensis female	0.00			167
Merluccius capensis male	0.00			166
Total	609.56		100.00	

PROJECT STATION: 59
 DATE: 7/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2542 Long E 1432
 start stop duration Purpose code: 3
 TIME :09:20:00 09:50:00 30 (min) Area code : 1
 LOG :3403.30 3405.00 1.70 GearCond.code: 1
 FDEPTH: 153 150 Validity code:
 BDEPTH: 153 150
 Towing dir: 355° Wire out: 650 m Speed: 34 kn*10

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Total			

PROJECT STATION: 60
 DATE: 7/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2535 Long E 1448
 start stop duration Purpose code: 3
 TIME :12:08:00 12:38:00 30 (min) Area code : 1
 LOG :3426.70 3428.40 1.70 GearCond.code: 1
 FDEPTH: 68 67 Validity code:
 BDEPTH: 68 67
 Towing dir: 195° Wire out: 300 m Speed: 33 kn*10

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Total			

PROJECT STATION: 61
 DATE: 7/ 2/90 GEAR TYPE: PT No:4 POSITION: Lat S 2533 Long E 1448
 start stop duration Purpose code: 1
 TIME :21:52:00 22:02:00 10 (min) Area code : 1
 LOG :3503.70 3504.10 0.40 GearCond.code: 1
 FDEPTH: 5 5 Validity code:
 BDEPTH: 64 64
 Towing dir: 350° Wire out: 200 m Speed: 24 kn*10

Sorted: 16 Kg Total catch: 48.00 CATCH/HOUR: 288.00

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Chelidonichthys capensis	288.00	3528	100.00 168
Total	288.00	100.00	

PROJECT STATION: 62
 DATE: 8/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2522 Long E 1410
 start stop duration Purpose code: 3
 TIME :08:44:00 07:14:00 30 (min) Area code : 1
 LOG :3557.30 3559.10 1.80 GearCond.code: 1
 FDEPTH: 202 200 Validity code:
 BDEPTH: 202 200
 Towing dir: 360° Wire out: 750 m Speed: 36 kn*10

Sorted: 22 Kg Total catch: 363.20 CATCH/HOUR: 726.40

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Merluccius capensis	726.40	8032	100.00 169
Merluccius capensis female	0.00		171
Merluccius capensis male	0.00		170
Total	726.40	100.00	

PROJECT STATION: 63
 DATE: 8/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2523 Long E 1347
 start stop duration Purpose code: 3
 TIME :09:51:00 10:21:00 30 (min) Area code : 1
 LOG :3585.20 3587.10 1.90 GearCond.code: 1
 FDEPTH: 298 296 Validity code:
 BDEPTH: 298 296
 Towing dir: 340° Wire out: 900 m Speed: 38 kn*10

Sorted: 168 Kg Total catch: 469.10 CATCH/HOUR: 938.20

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Merluccius capensis	593.00	2624	63.21 172
Krill	105.60	11.20	
MYCTOPHIDAE	79.20	52812	8.44
Todarodes sagittatus	78.00	150	8.31
Sufflogobius bibarbatatus	50.40	4800	5.37
Schedophilus huttoni	30.80	16	3.28
Coelorinchus fasciatus	1.20	24	0.13
Trachipterus trachipterus	0.00	2	
Merluccius capensis female	0.00		174
Merluccius capensis male	0.00		173
Total	938.20	100.00	

PROJECT STATION: 64
 DATE: 8/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2518 Long E 1342
 start stop duration Purpose code: 3
 TIME :11:35:00 12:05:00 30 (min) Area code : 1
 LOG :3594.70 3596.40 1.70 GearCond.code: 1
 FDEPTH: 352 348 Validity code:
 BDEPTH: 352 348
 Towing dir: 350° Wire out: 1050 m Speed: 33 kn*10

Sorted: 35 Kg Total catch: 66.80 CATCH/HOUR: 133.60

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Merluccius paradoxus	58.00	100	43.41 175
Todarodes sagittatus	36.00	60	26.95
Malacocephalus laevis	12.00	180	8.98
Helicolenus dactylopterus	9.60	96	7.19
Beryx splendens	8.40	24	6.26
Galeus pollii	3.60	24	2.65
Krill	2.40		1.80
Coelorinchus fasciatus	1.20	72	0.90
MYCTOPHIDAE	1.20	276	0.90
Neoharriotta pinnata	1.20	2	0.90
Merluccius paradoxus female	0.00		177
Merluccius paradoxus male	0.00		176
Total	133.60	100.00	

PROJECT STATION: 65
 DATE: 8/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2518 Long E 1339
 start stop duration Purpose code: 3
 TIME :13:12:00 13:42:00 30 (min) Area code : 1
 LOG :3604.10 3605.70 1.60 GearCond.code: 1
 FDEPTH: 426 414 Validity code:
 BDEPTH: 426 414
 Towing dir: 355° Wire out: 1200 m Speed: 30 kn*10

Sorted: 43 Kg Total catch: 69.60 CATCH/HOUR: 119.20

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Merluccius paradoxus	46.00	54	38.59 178
Todarodes sagittatus	30.00	54	25.17
Raja caudaspinosa	13.00	8	10.91
Helicolenus dactylopterus	8.00	32	6.71
Nezumia sp	6.00	528	5.03
Malacocephalus laevis	6.00	78	5.03
Schedophilus huttoni	5.40	4	4.53
Hoplostethus melanopus	3.00	84	2.52
Galeus pollii	1.20	16	1.01
MYCTOPHIDAE	0.60		0.50
Regalecus glesne	0.00	2	
Merluccius paradoxus female	0.00		179
Total	119.20	100.00	

PROJECT STATION: 66
 DATE: 8/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2503 Long E 1340
 start stop duration Purpose code: 3
 TIME :15:22:00 15:52:00 30 (min) Area code : 1
 LOG :3620.80 3622.50 1.70 GearCond.code: 1
 FDEPTH: 402 395 Validity code:
 BDEPTH: 402 395
 Towing dir: 360° Wire out: 1150 m Speed: 32 kn*10

Sorted: 40 Kg Total catch: 53.50 CATCH/HOUR: 107.00

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Todarodes sagittatus	31.00	66	28.97
Merluccius paradoxus	19.60	30	18.32 180
Galeus pollii	13.20	126	12.34
Malacocephalus laevis	12.00	162	11.21
Schedophilus huttoni	9.80	6	9.16
Helicolenus dactylopterus	7.20	108	6.73
Neoharriotta pinnata	6.00	4	5.61
Nezumia sp	3.00	282	2.80
Hoplostethus melanopus	3.00	126	2.80
Ebinaia costaeanic	2.20	2	2.06
Merluccius paradoxus female	0.00		182
Merluccius paradoxus male	0.00		181
Total	107.00	100.00	

PROJECT STATION: 67
 DATE: 8/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2501 Long E 1345
 start stop duration Purpose code: 3
 TIME :16:49:00 17:19:00 30 (min) Area code : 1
 LOG :3628.20 3629.80 1.60 GearCond.code: 1
 FDEPTH: 299 297 Validity code:
 BDEPTH: 299 297
 Towing dir: 360° Wire out: 900 m Speed: 34 kn*10

Sorted: 149 Kg Total catch: 206.98 CATCH/HOUR: 413.96

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Merluccius capensis	241.80	884	58.41 183
Sufflogobius bibarbatatus	49.60	3174	11.98
Trachurus capensis	44.00	78	10.63 186
MYCTOPHIDAE	29.76	10268	7.19
Krill	24.80		5.99
Todarodes sagittatus	18.00	30	4.35
Thyrateus atun	6.00	12	1.45
Merluccius capensis female	0.00		185
Merluccius capensis male	0.00		184
Total	413.96	100.00	

PROJECT STATION: 68
 DATE: 8/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2459 Long E 1349
 start stop duration Purpose code: 3
 TIME :18:17:00 18:47:00 30 (min) Area code : 1
 LOG :3635.80 3637.40 1.60 GearCond.code: 1
 FDEPTH: 255 255 Validity code:
 BDEPTH: 255 255
 Towing dir: 10° Wire out: 800 m Speed: 32 kn*10

Sorted: 34 Kg Total catch: 335.06 CATCH/HOUR: 670.16

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Merluccius capensis	492.80	3696	73.53 187
Sufflogobius bibarbatatus	118.70	7578	17.71
MYCTOPHIDAE	21.46	6148	3.20
Todarodes sagittatus	20.90	36	3.12
Krill	14.30		2.13
Trachurus capensis	2.00	4	0.30
Merluccius capensis female	0.00		189
Merluccius capensis male	0.00		188
Total	670.16	99.99	

PROJECT STATION: 69
 DATE: 8/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2457 Long E 1353
 start stop duration Purpose code: 3
 TIME :19:41:00 20:11:00 30 (min) Area code : 1
 LOG :3643.50 3645.10 1.60 GearCond.code: 1
 FDEPTH: 202 203 Validity code:
 BDEPTH: 202 203
 Towing dir: 10° Wire out: 750 m Speed: 32 kn*10

Sorted: 27 Kg Total catch: 710.60 CATCH/HOUR: 1421.20

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP.NO.
Merluccius capensis	1361.40	16588	95.79 190
Sufflogobius bibarbatatus	59.80	6448	4.21
Merluccius capensis female	0.00		192
Merluccius capensis male	0.00		191
Total	1421.20	100.00	

PROJECT STATION: 70
 DATE: 9/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2452
 start stop duration Long K 1427
 TIME :06:44:00 07:14:00 30 (min) Purpose code: 3
 LOG :3738.80 3740.30 1.70 Area code : 1
 FDEPTH: 103 100 GearCond.code: 8
 BDEPTH: 103 100 Validity code: 9
 Towing dir: 360° Wire out: 350 m Speed: 34 kn*10

Sorted: Kg Total catch: CATCH/HOUR:
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 N O C A T C H 0.00
 Total

PROJECT STATION: 71
 DATE: 9/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2449
 start stop duration Long E 1412
 TIME :10:30:00 10:41:00 11 (min) Purpose code: 3
 LOG :3761.00 3761.40 0.40 Area code : 1
 FDEPTH: 155 155 GearCond.code: 9
 BDEPTH: 155 155 Validity code: 9
 Towing dir: 300° Wire out: 650 m Speed: 30 kn*10

Sorted: Kg Total catch: CATCH/HOUR:
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 N O C A T C H 0.00
 Total

PROJECT STATION: 72
 DATE: 9/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2448
 start stop duration Long E 1406
 TIME :11:44:00 12:14:00 30 (min) Purpose code: 3
 LOG :3768.70 3770.40 1.70 Area code : 1
 FDEPTH: 158 158 GearCond.code: 8
 BDEPTH: 158 158 Validity code: 9
 Towing dir: 350° Wire out: 650 m Speed: 30 kn*10

Sorted: Kg Total catch: CATCH/HOUR:
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 N O C A T C H 0.00
 Total

PROJECT STATION: 73
 DATE: 9/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2442
 start stop duration Long E 1353
 TIME :14:30:00 15:00:00 30 (min) Purpose code: 3
 LOG :3789.10 3790.70 1.60 Area code : 1
 FDEPTH: 223 223 GearCond.code: 8
 BDEPTH: 223 223 Validity code: 9
 Towing dir: 360° Wire out: 800 m Speed: 33 kn*10

Sorted: 26 Kg Total catch: 211.20 CATCH/HOUR: 422.40
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Merluccius capensis 264.00 3312 62.50 193
 Sufflogobius bibarbatus 152.00 11062 35.99
 Todarodes eblanae 6.40 32 1.52
 Merluccius capensis female 0.00
 Merluccius capensis male 0.00
 Total 422.40 100.00

PROJECT STATION: 74
 DATE: 9/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2440
 start stop duration Long E 1351
 TIME :16:09:00 16:39:00 30 (min) Purpose code: 3
 LOG :3799.70 3800.90 1.20 Area code : 1
 FDEPTH: 271 273 GearCond.code: 8
 BDEPTH: 271 273 Validity code: 9
 Towing dir: 360° Wire out: 850 m Speed: 24 kn*10

Sorted: 38 Kg Total catch: 38.70 CATCH/HOUR: 77.40
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 MYCTOPHIDAE 36.80 18032 47.55
 Merluccius capensis 29.40 166 37.98 196
 Krill 6.00 4 6.46
 Todarodes sagittatus 5.00 4 0.26
 Sufflogobius bibarbatus 0.20 8
 Merluccius capensis female 0.00
 Merluccius capensis male 0.00
 Total 77.20 100.00

PROJECT STATION: 75
 DATE: 9/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2441
 start stop duration Long E 1345
 TIME :17:59:00 18:29:00 30 (min) Purpose code: 3
 LOG :3811.50 3812.90 1.40 Area code : 1
 FDEPTH: 353 351 GearCond.code: 8
 BDEPTH: 353 351 Validity code: 9
 Towing dir: 360° Wire out: 1100 m Speed: 28 kn*10

Sorted: 54 Kg Total catch: 68.10 CATCH/HOUR: 136.20
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Merluccius capensis 61.40 82 45.08 199
 Coelorinchus fasciatus 14.00 292 10.28
 Galeus polli 11.20 448 6.22
 Trachurus capensis 9.00 20 6.61
 Squilla sp 8.00 454 5.87
 Merluccius paradoxus 7.00 12 5.14
 Schedophilus huttoni 6.00 4 4.43
 Todarodes sagittatus 4.00 8 2.94
 Helicolenus dactylopterus 4.00 140 2.94
 Nezumia sp 3.00 112 2.04
 Lophius upsicephalus 3.40 8 2.50
 MYCTOPHIDAE 3.04 1488 2.23
 Notacanthus exapinis 0.80 4 0.59
 Krill 0.76 4 0.56
 Merluccius capensis female 0.00 201
 Merluccius capensis male 0.00 200
 Total 136.20 100.01

PROJECT STATION: 76
 DATE: 9/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2439
 start stop duration Long E 1332
 TIME :20:35:00 21:20:00 45 (min) Purpose code: 3
 LOG :3830.20 3832.30 2.10 Area code : 1
 FDEPTH: 450 450 GearCond.code: 8
 BDEPTH: 450 450 Validity code: 9
 Towing dir: 340° Wire out: 1350 m Speed: 29 kn*10

Sorted: 89 Kg Total catch: 99.12 CATCH/HOUR: 132.16
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Todarodes sagittatus 44.53 88 33.69
 Merluccius paradoxus 34.93 49 28.43 202
 Nezumia sp 13.07 340 9.89
 Helicolenus dactylopterus 10.13 56 7.66
 Trachyrinus acubus 9.07 44 6.86
 Centroscyllium crepidater 4.27 4 3.23
 Deania calcea 4.13 7 3.13
 Selachophidium guentheri 3.33 48 2.52
 Beryx splendens 1.33 4 1.01
 Scopelogadus maurus 1.27 21 0.96
 Hoplostethus melanopus 0.93 32 0.70
 Etmopterus spinax 0.80 3 0.61
 MYCTOPHIDAE 0.67 183 0.51
 Dasanaco albescens 0.67 1 0.51
 Lophius upsicephalus 0.59 1 0.45
 Squilla sp 0.40 7 0.30
 Etmopterus lucifer 0.40 1 0.30
 Cubiceps caeruleus 0.33 1 0.25
 Shrimps, small, non comm. 0.27 68 0.20
 Epigonus pandionis 0.11 6 0.08
 Merluccius paradoxus female 0.00
 Total 131.23 99.29

PROJECT STATION: 77
 DATE: 10/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2421
 start stop duration Long E 1322
 TIME :02:15:00 03:15:00 59 (min) Purpose code: 3
 LOG :3861.80 3865.40 3.60 Area code : 1
 FDEPTH: 489 480 GearCond.code: 8
 BDEPTH: 489 480 Validity code: 9
 Towing dir: 340° Wire out: 1500 m Speed: 35 kn*10

Sorted: Kg Total catch: CATCH/HOUR:
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 N O C A T C H 0.00
 Total

PROJECT STATION: 78
 DATE: 10/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2424
 start stop duration Long E 1327
 TIME :10:01:00 10:31:00 30 (min) Purpose code: 3
 LOG :3885.80 3888.60 2.80 Area code : 1
 FDEPTH: 380 383 GearCond.code: 8
 BDEPTH: 380 383 Validity code: 9
 Towing dir: 340° Wire out: 1200 m Speed: 36 kn*10

Sorted: 83 Kg Total catch: 91.30 CATCH/HOUR: 182.60
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Centrophorus squamosus 51.20 4 28.04
 Merluccius paradoxus 46.00 80 25.19 204
 Todarodes sagittatus 42.40 92 23.22
 Coelorinchus fasciatus 10.00 172 5.48
 Centrophorus granulosus 7.00 2 3.63
 Helicolenus dactylopterus 6.00 64 3.29
 Nezumia sp 6.00 164 3.29
 Schedophilus huttoni 4.20 4 2.30
 S H R I M P S 2.40 1.31
 Krill 2.40 1.31
 Galeus polli 2.00 20 1.10
 Epigonus pandionis 2.00 72 1.10
 Etmopterus spinax 1.00 4 0.55
 Merluccius paradoxus female 0.00
 Total 182.60 100.01

PROJECT STATION: 79
 DATE: 10/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2423
 start stop duration Long E 1346
 TIME :14:18:00 14:48:00 30 (min) Purpose code: 3
 LOG :3914.20 3916.00 1.80 Area code : 1
 FDEPTH: 303 300 GearCond.code: 8
 BDEPTH: 303 300 Validity code: 9
 Towing dir: 345° Wire out: 1000 m Speed: 33 kn*10

Sorted: 212 Kg Total catch: 223.40 CATCH/HOUR: 446.80
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Merluccius capensis 315.80 1366 70.60 205
 Schedophilus huttoni 103.00 42 23.05 209
 Coelorinchus fasciatus 12.00 80 2.69
 Todarodes sagittatus 7.00 10 1.57
 Sufflogobius bibarbatus 7.00 1260 1.57
 Helicolenus dactylopterus 2.00 20 0.45
 Merluccius capensis female 0.00
 Merluccius capensis male 0.00
 Total 446.80 100.01

PROJECT STATION: 80
 DATE: 10/ 2/90 GEAR TYPE: BT No:1 POSITION:Lat S 2425
 start stop duration Long E 1356
 TIME :17:08:00 17:38:00 30 (min) Purpose code: 3
 LOG :3929.60 3931.40 1.80 Area code : 1
 FDEPTH: 250 252 GearCond.code: 8
 BDEPTH: 250 252 Validity code: 9
 Towing dir: 360° Wire out: 800 m Speed: 35 kn*10

Sorted: 28 Kg Total catch: 106.92 CATCH/HOUR: 213.84
 SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Merluccius capensis 142.00 880 66.40 210
 Sufflogobius bibarbatus 52.00 4506 24.32
 Lophius upsicephalus 6.00 4 2.81
 Todarodes sagittatus 5.76 8 2.69
 Krill 2.80 1.31
 Leptocottus hectoris 2.40 1312 1.12
 Squilla sp 1.60 40 0.75
 Coelorinchus fasciatus 1.28 16 0.60
 Merluccius capensis female 0.00
 Merluccius capensis male 0.00
 Total 213.84 100.00

PROJECT STATION: 81
 DATE: 10/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2419 Long E 1400
 TIME : 19:17:00 19:47:00 30 (min) Purpose code: 3
 LOG : 3937.70 3939.30 1.60 Area code : 1
 FDEPTH: 202 204 GearCond.code:
 BDEPTH: 202 204 Validity code:
 Towing dir: 360° Wire out: 700 m Speed: 32 kn*10
 Sorted: 28 Kg Total catch: 521.10 CATCH/HOUR: 1042.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	997.20 12456	95.68	213
Sufflogobius bibarbatatus	46.00 1180	4.32	215
Merluccius capensis female	0.00		214
Merluccius capensis male	0.00		
Total	1042.20	100.00	

PROJECT STATION: 87
 DATE: 11/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2402 Long E 1332
 TIME : 18:19:00 18:49:00 30 (min) Purpose code: 3
 LOG : 4130.10 4132.00 1.90 Area code : 1
 FDEPTH: 280 277 GearCond.code:
 BDEPTH: 280 277 Validity code:
 Towing dir: 350° Wire out: 950 m Speed: 38 kn*10
 Sorted: 85 Kg Total catch: 197.15 CATCH/HOUR: 394.30

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	287.70 1106	72.96	227
Sufflogobius bibarbatatus	36.00 3600	9.13	
Todarodes sagittatus	13.30 20	3.37	
Lampanyctodes hectoris	12.00 3360	3.04	
Trachurus capensis	10.00 18	2.74	
Trachipterus trachipterus	10.40 8	2.64	
Schedophilus huttoni	8.60 4	2.18	
Helicolenus dactylopterus	5.00 330	1.27	
Chlorophthalmus punctatus	4.50 290	1.14	
Coelorinchus fasciatus	4.00 90	1.01	
Lepidopus caudatus	1.00 20	0.25	
Geleus polli	1.00 10	0.25	
Merluccius capensis female	0.00		228
Merluccius capensis male	0.00		226
Total	394.30	99.98	

PROJECT STATION: 82
 DATE: 10/2/90 GEAR TYPE: FT No:5 POSITION: Lat S 2422 Long E 1429
 TIME : 23:45:00 23:50:00 5 (min) Purpose code: 1
 LOG : 3974.10 3974.50 0.40 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 32 32 Validity code:
 Towing dir: 340° Wire out: 150 m Speed: 30 kn*10
 Sorted: 2 Kg Total catch: 30.00 CATCH/HOUR: 360.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Trachurus capensis	360.00 20952	100.00	216
Total	360.00	100.00	

PROJECT STATION: 88
 DATE: 11/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2359 Long E 1320
 TIME : 20:14:00 20:44:00 30 (min) Purpose code: 3
 LOG : 4144.40 4146.10 1.70 Area code : 1
 FDEPTH: 301 303 GearCond.code:
 BDEPTH: 301 303 Validity code:
 Towing dir: 350° Wire out: 900 m Speed: 34 kn*10
 Sorted: 51 Kg Total catch: 61.90 CATCH/HOUR: 123.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	85.40 192	68.98	230
Helicolenus dactylopterus	13.60 1216	10.99	
Trachurus capensis	8.00 16	6.46	
Coelorinchus fasciatus	6.48 184	5.23	
Geleus polli	4.80 104	3.88	
Todarodes sagittatus	3.06 4	2.47	
Nezumia sp	1.28 48	1.03	
Epigonus pandionis	0.88 24	0.71	
Chlorophthalmus punctatus	0.16 32	0.13	
MYCTOPHIDAE	0.08 552	0.06	
Merluccius capensis female	0.00		232
Merluccius capensis male	0.00		231
Total	123.74	99.94	

PROJECT STATION: 89
 DATE: 11/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2401 Long E 1416
 TIME : 08:21:00 08:51:00 30 (min) Purpose code: 3
 LOG : 4082.40 4084.30 1.90 Area code : 1
 FDEPTH: 110 109 GearCond.code:
 BDEPTH: 110 109 Validity code:
 Towing dir: 350° Wire out: 400 m Speed: 38 kn*10
 Sorted: 8 Kg Total catch: 27.88 CATCH/HOUR: 55.76

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Sufflogobius bibarbatatus	51.60 7978	92.54	217
Callorhynchus capensis	2.80 2	5.02	
Merluccius capensis	1.36 64	2.44	218
Total	55.76	100.00	

PROJECT STATION: 84
 DATE: 11/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2401 Long E 1313
 TIME : 23:02:00 23:32:00 30 (min) Purpose code: 3
 LOG : 4160.20 4162.00 1.80 Area code : 1
 FDEPTH: 450 450 GearCond.code:
 BDEPTH: 450 450 Validity code:
 Towing dir: 340° Wire out: 1400 m Speed: 36 kn*10
 Sorted: 94 Kg Total catch: 162.80 CATCH/HOUR: 325.60

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Hoplostethus melanopus	99.20 4496	30.47	
Merluccius paradoxus	59.60 54	18.30	233
Todarodes sagittatus	46.40 112	14.25	
Centropristis squameus	35.60 4	10.93	
Helicolenus dactylopterus	20.40 52	6.27	
Nezumia sp	19.20 464	5.90	
Trachyrhinus scabrus	19.20 208	5.90	
Deania calcea	13.00 10	3.99	
COLOSSOMATIDAE	6.40 448	1.97	
Raja caudispinosa	2.40 4	0.74	
Raja stenorchynus	1.60 2	0.49	
Lophius ualcephalus	1.00 2	0.31	
Notacanthus sexspinis	0.60 28	0.25	
Etmopterus spinax	0.80 2	0.25	
Merluccius paradoxus female	0.00		235
Merluccius paradoxus male	0.00		234
Total	325.60	100.02	

PROJECT STATION: 86
 DATE: 11/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2401 Long E 1406
 TIME : 12:03:00 12:43:00 30 (min) Purpose code: 3
 LOG : 4077.60 4079.40 1.80 Area code : 1
 FDEPTH: 159 159 GearCond.code:
 BDEPTH: 159 159 Validity code:
 Towing dir: 355° Wire out: 650 m Speed: 35 kn*10
 Sorted: 118 Kg Total catch: 515.45 CATCH/HOUR: 1237.08

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	1026.48 72708	82.98	220
Thysites atun	210.60 84	17.02	219
Total	1237.08	100.00	

PROJECT STATION: 85
 DATE: 11/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2401 Long E 1401
 TIME : 12:13:00 12:43:00 30 (min) Purpose code: 3
 LOG : 4088.20 4089.90 1.70 Area code : 1
 FDEPTH: 201 200 GearCond.code:
 BDEPTH: 201 200 Validity code:
 Towing dir: 360° Wire out: 700 m Speed: 34 kn*10
 Sorted: Kg Total catch: 3250.00 CATCH/HOUR: 6500.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	6500.00 71876	100.00	221
Merluccius capensis female	0.00		223
Merluccius capensis male	0.00		222
Total	6500.00	100.00	

PROJECT STATION: 90
 DATE: 12/2/90 GEAR TYPE: FT No:4 POSITION: Lat S 2400 Long E 1314
 TIME : 00:41:00 01:11:00 30 (min) Purpose code: 1
 LOG : 4163.40 4164.80 1.40 Area code : 1
 FDEPTH: 430 430 GearCond.code:
 BDEPTH: 430 430 Validity code:
 Towing dir: 170° Wire out: 200 m Speed: 30 kn*10
 Sorted: 129 Kg Total catch: 129.60 CATCH/HOUR: 279.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
MYCTOPHIDAE	240.00 6658	85.96	
Krill	24.00	8.60	
Schedophilus huttoni	15.20 6	5.44	
Total	279.20	100.00	

PROJECT STATION: 86
 DATE: 11/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2401 Long E 1348
 TIME : 15:10:00 15:40:00 30 (min) Purpose code: 3
 LOG : 4107.50 4109.30 1.80 Area code : 1
 FDEPTH: 245 241 GearCond.code:
 BDEPTH: 245 241 Validity code:
 Towing dir: 360° Wire out: 750 m Speed: 33 kn*10
 Sorted: 115 Kg Total catch: 161.70 CATCH/HOUR: 323.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	717.40 1906	67.22	224
Sufflogobius bibarbatatus	60.20 5418	18.61	
Todarodes sagittatus	22.40 42	6.93	
MYCTOPHIDAE	11.20 3500	3.46	
Trachipterus trachipterus	6.60 4	2.04	
Helicolenus dactylopterus	5.60 588	1.73	
Merluccius capensis female	0.00		226
Merluccius capensis male	0.00		225
Total	323.40	99.99	

PROJECT STATION: 91
 DATE: 12/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2342 Long E 1308
 start stop duration Purpose code: 3
 TIME :07:05:00 07:55:00 50 (min)
 LOG :4207.10 4209.50 2.40 Area code : 1
 FDEPTH: 503 500 GearCond.code:
 BDEPTH: 503 500 Validity code:
 Towing dir: 345° Wire out: 1500 m Speed: 34 kn*10

Sorted: 210 Kg Total catch: 280.45 CATCH/HOUR: 336.54

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Deania calcea	177.48	127	52.74	
Trachyrhinus scabrus	37.44	139	11.12	
Nezumia sp	24.00	1037	7.13	
Hoplostethus melanopus	20.16	432	5.99	
Centrophorus squamosus	16.20	1	4.81	
Merluccius paradoxus	14.64	11	4.35	236
Todarodes sagittatus	10.80	6	3.21	
Helicolenus dactylopterus	7.20	14	2.14	
Lophius upsicephalus	5.70	5	1.89	
Shrimps, small, non com.	4.80	1920	1.43	
ALEPOCEPHALIDAE	4.80	192	1.43	
Centroscyenus crepidater	3.60	4	1.07	
Raja caudaspinosa	3.12	2	0.93	
Schedophilus huttoni	2.64	2	0.78	
GONOSTOMATIDAE	1.92	566	0.67	
GEMPYLIDAE	1.44	10	0.43	
Selachophidium guentheri	0.48	56	0.14	
Merluccius paradoxus female	0.00	1	0.04	238
Merluccius paradoxus male	0.00			237
Total	336.54		100.00	

PROJECT STATION: 95
 DATE: 12/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2340 Long E 1349
 start stop duration Purpose code: 3
 TIME :16:18:00 16:45:00 30 (min)
 LOG :4273.90 4275.80 1.90 Area code : 1
 FDEPTH: 185 183 GearCond.code:
 BDEPTH: 185 183 Validity code:
 Towing dir: 330° Wire out: 700 m Speed: 39 kn*10

Sorted: 50 Kg Total catch: 486.93 CATCH/HOUR: 973.86

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	934.80	4788	95.99	250
Sufflogobius bibarbatus	15.20	1366	1.56	
Auetroglossus microlepis	15.20	38	1.56	
Lophius upsicephalus	3.40	4	0.35	
Coelorinchus fasciatus	2.86	56	0.29	
Brama brama	2.40	2	0.25	
Merluccius capensis female	0.00			252
Merluccius capensis male	0.00			251
Total	973.86		100.00	

PROJECT STATION: 96
 DATE: 12/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2340 Long E 1401
 start stop duration Purpose code: 3
 TIME :18:29:00 18:59:00 30 (min)
 LOG :4291.30 4293.00 1.70 Area code : 1
 FDEPTH: 165 162 GearCond.code:
 BDEPTH: 165 162 Validity code:
 Towing dir: 360° Wire out: 650 m Speed: 34 kn*10

Sorted: 14 Kg Total catch: 746.54 CATCH/HOUR: 1493.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	1488.00	17160	99.66	253
Thyrssites atun	5.08	2	0.34	
Merluccius capensis female	0.00			255
Merluccius capensis male	0.00			254
Total	1493.08		100.00	

PROJECT STATION: 92
 DATE: 12/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2341 Long E 1312
 start stop duration Purpose code: 3
 TIME :09:08:00 09:38:00 30 (min)
 LOG :4217.90 4219.50 1.60 Area code : 1
 FDEPTH: 376 374 GearCond.code:
 BDEPTH: 376 374 Validity code:
 Towing dir: 360° Wire out: 1100 m Speed: 32 kn*10

Sorted: 123 Kg Total catch: 184.16 CATCH/HOUR: 368.32

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius paradoxus	160.60	256	49.03	239
Todarodes sagittatus	58.38	126	15.85	
Helicolenus dactylopterus	29.25	728	7.94	
Coelorinchus fasciatus	20.45	532	7.18	
Deania calcea	16.20	12	4.32	
Hoplostethus melanopus	14.00	462	3.80	
Lophius upsicephalus	9.20	8	2.50	
Trachipterus trachipterus	8.60	2	2.33	
Neoharriotta pinnata	8.20	4	2.23	
Selachophidium guentheri	7.00	294	1.90	
Nezumia sp	6.30	196	1.71	
Schedophilus huttoni	2.38	2	0.65	
Etmopterus spinax	1.04	4	0.28	
Epigonus pandionis	0.70	28	0.19	
Merluccius paradoxus female	0.00			241
Merluccius paradoxus male	0.00			240
Total	368.32		99.99	

PROJECT STATION: 97
 DATE: 12/ 2/90 GEAR TYPE: PT No:4 POSITION: Lat S 2334 Long E 1413
 start stop duration Purpose code: 1
 TIME :20:35:00 20:45:00 10 (min)
 LOG :4306.80 4307.20 0.40 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 5 5 Validity code:
 Towing dir: 270° Wire out: 150 m Speed: 30 kn*10

Sorted: 6 Kg Total catch: 19.42 CATCH/HOUR: 116.52

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Engraulis capensis	79.20	4660	67.97	256
Thyrssites atun	21.12	8	18.13	
Sardinops ocellata	16.20	126	13.90	
Total	116.52		100.00	

PROJECT STATION: 93
 DATE: 12/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2400 Long E 1323
 start stop duration Purpose code: 3
 TIME :11:23:00 11:53:00 30 (min)
 LOG :4234.20 4235.80 1.60 Area code : 1
 FDEPTH: 272 270 GearCond.code:
 BDEPTH: 272 270 Validity code:
 Towing dir: 360° Wire out: 850 m Speed: 32 kn*10

Sorted: 75 Kg Total catch: 151.70 CATCH/HOUR: 303.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	164.00	1032	54.05	242
Trachurus capensis	89.40	174	29.47	245
Selachophidium guentheri	16.00	864	5.27	
Sufflogobius bibarbatus	13.60	1224	4.48	
Schedophilus huttoni	4.80	2	1.58	
Galeus polli	4.00	60	1.32	
Lophius upsicephalus	3.00	4	0.99	
Brama brama	3.00	2	0.99	
Helicolenus dactylopterus	2.40	72	0.79	
MYCTOPHIDAE	1.60	80	0.53	
Krill	0.80	8	0.25	
Coelorinchus fasciatus	0.80	8	0.26	
Merluccius capensis female	0.00			244
Merluccius capensis male	0.00			243
Total	303.40		99.99	

PROJECT STATION: 98
 DATE: 13/ 2/90 GEAR TYPE: PT No:4 POSITION: Lat S 2329 Long E 1418
 start stop duration Purpose code: 1
 TIME :02:53:00 03:00:00 7 (min)
 LOG :4365.20 4365.60 0.40 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 97 98 Validity code:
 Towing dir: 220° Wire out: 200 m Speed: 32 kn*10

Sorted: 1 Kg Total catch: 10.40 CATCH/HOUR: 69.14

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Engraulis capensis	51.43	2057	57.70	257
Trachurus capensis	37.71	1166	42.30	258
Total	89.14		100.00	

PROJECT STATION: 99
 DATE: 13/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2320 Long E 1414
 start stop duration Purpose code: 3
 TIME :06:57:00 07:27:00 30 (min)
 LOG :4390.40 4392.00 1.60 Area code : 1
 FDEPTH: 111 111 GearCond.code:
 BDEPTH: 111 111 Validity code:
 Towing dir: 360° Wire out: 350 m Speed: 32 kn*10

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
N O C A T C H	0.00			
Total	0.00			

PROJECT STATION: 94
 DATE: 12/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2341 Long E 1326
 start stop duration Purpose code: 3
 TIME :13:47:00 14:17:00 30 (min)
 LOG :4253.30 4255.20 1.90 Area code : 1
 FDEPTH: 228 226 GearCond.code:
 BDEPTH: 228 226 Validity code:
 Towing dir: 345° Wire out: 800 m Speed: 34 kn*10

Sorted: 142 Kg Total catch: 168.80 CATCH/HOUR: 337.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	152.80	1264	45.26	246
Trachurus capensis	108.40	212	32.11	249
Sufflogobius bibarbatus	62.40	566	18.48	
Todarodes sagittatus	4.00	24	1.18	
Lophius upsicephalus	3.90	8	1.07	
Helicolenus dactylopterus	2.40	176	0.71	
Galeus polli	1.60	8	0.47	
Brama brama	1.60	2	0.24	
Coelorinchus fasciatus	0.80	16	0.24	
Merluccius capensis female	0.00			248
Merluccius capensis male	0.00			247
Total	337.60		99.99	

PROJECT STATION: 100
 DATE: 13/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2321 Long E 1356
 start stop duration Purpose code: 3
 TIME :09:35:00 10:05:00 30 (min)
 LOG :4413.10 4414.70 1.60 Area code : 1
 FDEPTH: 155 156 GearCond.code:
 BDEPTH: 155 156 Validity code:
 Towing dir: 350° Wire out: 650 m Speed: 32 kn*10

Sorted: 15 Kg Total catch: 602.55 CATCH/HOUR: 1205.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	1127.10	12324	93.53	254
Sufflogobius bibarbatus	78.00	25584	6.47	262
Merluccius capensis female	0.00			261
Merluccius capensis male	0.00			260
Total	1205.10		100.00	

PROJECT STATION: 101
 DATE: 13/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2321 Long E 1336
 start stop duration
 TIME :12:15:00 12:45:00 30 (min) Purpose code: 3
 LOG :4435.50 4437.30 1.80 Area code : 1
 FDEPTH: 174 174 GearCond.code: 1
 BDEPTH: 174 174 Validity code:
 Towing dir: 350° Wire out: 650 m Speed: 36 kn*10
 Sorted: 30 Kg Total catch: 173.40 CATCH/HOUR: 346.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	252.00	1442	72.66	263
Sufflogobius bibarbatus	71.40	5406	20.59	
Austroglossus microlepis	7.00	28	2.02	
Brama brama	5.00	4	1.44	
Todarodes sagittatus	4.20	50	1.21	
Trachurus capensis	4.00	14	1.15	
Lophius upilephalus	3.20	8	0.92	
Merluccius capensis female	0.00			265
Merluccius capensis male	0.00			264
Total	346.80		99.99	

PROJECT STATION: 102
 DATE: 13/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2321 Long E 1330
 start stop duration
 TIME :13:51:00 14:21:00 30 (min) Purpose code: 3
 LOG :4445.80 4447.60 1.80 Area code : 1
 FDEPTH: 218 223 GearCond.code: 1
 BDEPTH: 218 223 Validity code:
 Towing dir: 360° Wire out: 800 m Speed: 36 kn*10
 Sorted: 134 Kg Total catch: 157.50 CATCH/HOUR: 315.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachurus capensis	220.20	540	69.90	266
Merluccius capensis	53.80	320	17.02	267
Sufflogobius bibarbatus	30.00	4320	9.52	
Todarodes sagittatus	4.00	4	1.27	
Chlorophthalmus punctatus	2.40	372	0.76	
Coelorhynchus fasciatus	1.40	36	0.44	
Galeus polli	1.20	30	0.38	
Lophius upilephalus	1.20	4	0.38	
Helicolenus dactylopterus	1.00	80	0.32	
Merluccius capensis female	0.00			269
Merluccius capensis male	0.00			268
Total	315.00		99.99	

PROJECT STATION: 103
 DATE: 13/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2320 Long E 1321
 start stop duration
 TIME :15:45:00 16:15:00 30 (min) Purpose code: 3
 LOG :4459.10 4460.90 1.80 Area code : 1
 FDEPTH: 320 323 GearCond.code: 1
 BDEPTH: 320 323 Validity code:
 Towing dir: 360° Wire out: 1000 m Speed: 36 kn*10
 Sorted: 144 Kg Total catch: 310.90 CATCH/HOUR: 621.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Schedophilus huttoni	460.80	195	67.07	273
Merluccius capensis	115.20	350	18.53	270
Trachurus capensis	64.20	140	10.32	274
Todarodes sagittatus	10.40	24	1.67	
Helicolenus dactylopterus	6.40	48	1.05	
Galeus polli	4.00	40	0.84	
Coelorhynchus fasciatus	0.80	32	0.13	
Merluccius capensis female	0.00			272
Merluccius capensis male	0.00			271
Total	621.80		99.99	

PROJECT STATION: 104
 DATE: 13/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2321 Long E 1309
 start stop duration
 TIME :18:05:00 18:35:00 30 (min) Purpose code: 3
 LOG :4477.20 4478.80 1.60 Area code : 1
 FDEPTH: 414 416 GearCond.code: 1
 BDEPTH: 414 416 Validity code:
 Towing dir: 5° Wire out: 1200 m Speed: 32 kn*10
 Sorted: 36 Kg Total catch: 61.94 CATCH/HOUR: 123.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Nezumia sp.	21.60	1782	17.44	
Todarodes sagittatus	18.80	40	15.18	
Merluccius paradoxus	14.80	28	11.55	275
Hoplostethus melanopus	14.00	312	11.30	
Helicolenus dactylopterus	12.80	78	10.33	
Galeus polli	9.72	80	7.85	
Coelorhynchus fasciatus	5.60	28	4.52	
Raja caudaspinosa	4.20	4	3.39	
Selachophidium guentheri	4.00	108	3.23	
Centropristis squamosus	3.60	4	2.91	
Ebinania costaeacanthie	3.00	2	2.42	
Deania calcea	2.40	4	1.94	
Bassanago albescens	2.00	4	1.61	
CONOSTOMATIDAE	1.84	208	1.49	
Lophius upilephalus	1.80	6	1.45	
Plesionika sp.	1.60	560	1.29	
Etmopterus spinax	1.20	4	0.97	
Aristeus veridens	0.80	96	0.65	
Epigonus pandionis	0.12	4	0.10	
Merluccius paradoxus female	0.00			276
Total	123.88		100.02	

PROJECT STATION: 105
 DATE: 13/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2319 Long E 1304
 start stop duration
 TIME :19:47:00 20:32:00 45 (min) Purpose code: 3
 LOG :4486.70 4489.00 2.30 Area code : 1
 FDEPTH: 507 489 GearCond.code: 1
 BDEPTH: 507 489 Validity code:
 Towing dir: 5° Wire out: 1400 m Speed: 31 kn*10
 Sorted: 35 Kg Total catch: 60.42 CATCH/HOUR: 140.56

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Hoplostethus melanopus	12.80	299	15.89	
Trachyrhinus scabrus	12.80	59	15.89	
Merluccius paradoxus	11.07	11	13.74	277
Nezumia sp.	10.93	368	13.57	
Deania calcea	8.80	5	10.92	
Todarodes sagittatus	6.67	16	8.28	
Helicolenus dactylopterus	5.67	24	8.28	
CONOSTOMATIDAE	3.60	69	4.47	
Selachophidium guentheri	2.67	48	3.31	
Galeus polli	1.07	11	1.33	
Etmopterus spinax	1.07	3	1.33	
Plesionika sp.	0.80	320	0.99	
MYCTOPHIDAE	0.53	72	0.66	
Bathyroconger vicinus	0.40	5	0.50	
Aristeus veridens	0.40	48	0.50	
Ebinania costaeacanthie	0.27	5	0.34	
Epigonus pandionis	0.03	3	0.04	
Merluccius paradoxus female	0.00			278
Total	60.42		100.04	

PROJECT STATION: 106
 DATE: 13/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2300 Long E 1300
 start stop duration
 TIME :22:46:00 23:31:00 45 (min) Purpose code: 3
 LOG :4507.10 4509.90 2.80 Area code : 1
 FDEPTH: 486 487 GearCond.code: 1
 BDEPTH: 486 487 Validity code:
 Towing dir: 340° Wire out: 1500 m Speed: 30 kn*10
 Sorted: 67 Kg Total catch: 159.20 CATCH/HOUR: 212.27

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachyrhinus scabrus	72.60	256	34.30	
Merluccius paradoxus	65.87	45	31.03	279
Todarodes sagittatus	32.00	72	15.08	
Helicolenus dactylopterus	12.00	32	5.65	
Hoplostethus melanopus	11.20	576	5.28	
Nezumia sp.	8.00	274	3.77	
Raja caudaspinosa	6.40	16	3.02	
Lophius upilephalus	4.00	3	1.06	
Merluccius paradoxus female	0.00			280
Total	212.27		100.01	

PROJECT STATION: 107
 DATE: 14/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2302 Long E 1319
 start stop duration
 TIME :07:10:00 07:40:00 30 (min) Purpose code: 3
 LOG :4537.50 4539.00 1.50 Area code : 1
 FDEPTH: 354 351 GearCond.code: 1
 BDEPTH: 354 351 Validity code:
 Towing dir: 5° Wire out: 1100 m Speed: 31 kn*10
 Sorted: 46 Kg Total catch: 46.90 CATCH/HOUR: 93.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	31.40	36	33.48	281
Todarodes sagittatus	29.00	58	50.92	
Centrolophus niger	6.00	2	6.40	
Hexanchus griseus	5.30	4	5.65	
Krill	3.44	367	3.67	
Coelorhynchus fasciatus	3.40	68	3.62	
Galeus polli	3.20	28	3.41	
Schedophilus huttoni	2.30	2	3.09	
Trachyrhinus scabrus	2.80	2	2.99	
Helicolenus dactylopterus	1.60	56	1.71	
MYCTOPHIDAE	1.56	468	1.66	
Nezumia sp.	1.40	44	1.49	
Lophius upilephalus	0.90	2	0.96	
Trachyrhinus scabrus	0.40	2	0.43	
Lepidopus caudatus	0.20	2	0.21	
Raja caudaspinosa	0.20	2	0.21	
Selachophidium guentheri	0.10	2	0.11	
Merluccius capensis female	0.00			283
Merluccius capensis male	0.00			282
Total	93.80		100.01	

PROJECT STATION: 108
 DATE: 14/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2300 Long E 1330
 start stop duration
 TIME :09:10:00 09:42:00 30 (min) Purpose code: 3
 LOG :4551.40 4552.90 1.50 Area code : 1
 FDEPTH: 250 253 GearCond.code: 1
 BDEPTH: 250 253 Validity code:
 Towing dir: 360° Wire out: 750 m Speed: 30 kn*10
 Sorted: 51 Kg Total catch: 698.00 CATCH/HOUR: 1392.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachurus capensis	1339.20	8644	96.21	287
Merluccius capensis	52.80	236	3.79	284
Merluccius capensis female	0.00			286
Merluccius capensis male	0.00			285
Total	1392.00		100.00	

PROJECT STATION: 109
 DATE: 14/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2300 Long E 1340
 start stop duration
 TIME :11:16:00 11:46:00 30 (min) Purpose code: 3
 LOG :4566.50 4568.00 1.50 Area code : 1
 FDEPTH: 147 147 GearCond.code: 1
 BDEPTH: 147 147 Validity code:
 Towing dir: 360° Wire out: 550 m Speed: 30 kn*10
 Sorted: 82 Kg Total catch: 1100.00 CATCH/HOUR: 2200.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	1155.40	10134	51.52	
Trachurus capensis	1042.60	3980	47.39	291
Callorhynchus capensis	16.60	26	0.65	
Sufflogobius bibarbatus	5.40	934	0.25	
Merluccius capensis female	0.00			290
Merluccius capensis male	0.00			289
Total	2200.00		100.01	

PROJECT STATION: 110
 DATE: 14/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat E 2301 Long E 1353
 start stop duration
 TIME :13:50:00 14:20:00 30 (min) Purpose code: 3
 LOG :4587.50 4589.20 1.70 Area code : 1
 FDEPTH: 141 140 GearCond.code:
 BDEPTH: 141 140 Validity code:
 Towing dir: 360° Wire out: 600 m Speed: 33 kn*10
 Sorted: 29 Kg Total catch: 1572.00 CATCH/HOUR: 524.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	319.40	34726	98.93	292
Austroglobius microlepis	33.60	112	1.07	
Merluccius capensis female	0.00			294
Merluccius capensis male	0.00			293
Total	3144.00		100.00	

PROJECT STATION: 117
 DATE: 15/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2241 Long E 1341
 start stop duration
 TIME :11:31:00 11:41:00 30 (min) Purpose code: 3
 LOG :4776.70 4778.40 1.70 Area code : 1
 FDEPTH: 135 133 GearCond.code:
 BDEPTH: 135 133 Validity code:
 Towing dir: 360° Wire out: 550 m Speed: 34 kn*10
 Sorted: 24 Kg Total catch: 264.00 CATCH/HOUR: 528.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	510.40	6204	96.67	307
Sufflogobius bibarbatatus	17.60	1672	3.33	
Merluccius capensis female	0.00			309
Merluccius capensis male	0.00			306
Total	528.00		100.00	

PROJECT STATION: 111
 DATE: 14/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2301 Long E 1401
 start stop duration
 TIME :15:43:00 16:15:00 30 (min) Purpose code: 3
 LOG :4603.10 4604.70 1.60 Area code : 1
 FDEPTH: 133 132 GearCond.code:
 BDEPTH: 133 132 Validity code:
 Towing dir: 344° Wire out: 450 m Speed: 32 kn*10
 Sorted: 21 Kg Total catch: 353.10 CATCH/HOUR: 706.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	691.20	7020	97.88	295
Austroglobius microlepis	10.00	36	1.53	
Prionace glauca	4.20	2	0.59	
Merluccius capensis female	0.00			297
Merluccius capensis male	0.00			296
Total	706.20		100.00	

PROJECT STATION: 118
 DATE: 15/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2241 Long E 1331
 start stop duration
 TIME :13:03:00 13:23:00 30 (min) Purpose code: 3
 LOG :4790.20 4791.80 1.50 Area code : 1
 FDEPTH: 184 182 GearCond.code:
 BDEPTH: 184 182 Validity code:
 Towing dir: 10° Wire out: 700 m Speed: 30 kn*10
 Sorted: 24 Kg Total catch: 409.70 CATCH/HOUR: 819.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	778.60	6086	95.02	310
Sufflogobius bibarbatatus	34.00	4420	4.15	
Austroglobius microlepis	6.80	34	0.83	
Merluccius capensis female	0.00			312
Merluccius capensis male	0.00			311
Total	819.40		100.00	

PROJECT STATION: 112
 DATE: 14/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2313 Long E 1417
 start stop duration
 TIME :21:13:00 21:28:00 15 (min) Purpose code: 1
 LOG :4655.30 4655.80 0.50 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 93 85 Validity code:
 Towing dir: 90° Wire out: 150 m Speed: 20 kn*10
 Sorted: 5 Kg Total catch: 53.80 CATCH/HOUR: 215.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachurus capensis	212.00	4760	98.51	298
Etruscan whitehead	2.00	280	0.93	
Engraulis capensis	1.20	160	0.26	
Total	215.20		100.00	

PROJECT STATION: 119
 DATE: 15/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2240 Long E 1326
 start stop duration
 TIME :14:37:00 15:07:00 30 (min) Purpose code: 3
 LOG :4800.10 4801.60 1.50 Area code : 1
 FDEPTH: 244 243 GearCond.code:
 BDEPTH: 244 243 Validity code:
 Towing dir: 345° Wire out: 800 m Speed: 31 kn*10
 Sorted: 69 Kg Total catch: 299.85 CATCH/HOUR: 599.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	418.00	1074	69.80	313
Trachurus capensis	174.20	668	29.05	316
Todarodes sagittatus	4.80	8	0.80	
Lophius upsiccephalus	1.20	2	0.23	
Sufflogobius bibarbatatus	0.00	138	0.15	
Merluccius capensis female	0.00			315
Merluccius capensis male	0.00			314
Total	599.70		100.00	

PROJECT STATION: 113
 DATE: 14/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2314 Long E 1407
 start stop duration
 TIME :22:28:00 22:35:00 7 (min) Purpose code: 1
 LOG :4669.70 4670.10 0.40 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 124 123 Validity code:
 Towing dir: 180° Wire out: 150 m Speed: 32 kn*10
 Sorted: 20 Kg Total catch: 20.70 CATCH/HOUR: 177.43

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachurus capensis	114.00	3266	64.25	309
Thyrsites atun	36.80	34	20.77	
Engraulis capensis	17.14	831	9.66	299
Sardinops ocellata	8.57	69	4.83	301
Etruscan whitehead	0.66	17	0.48	
Total	177.43		99.99	

PROJECT STATION: 120
 DATE: 14/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2241 Long E 1345
 start stop duration
 TIME :16:43:00 17:13:00 30 (min) Purpose code: 3
 LOG :4815.50 4817.20 1.70 Area code : 1
 FDEPTH: 295 289 GearCond.code:
 BDEPTH: 295 289 Validity code:
 Towing dir: 340° Wire out: 900 m Speed: 35 kn*10
 Sorted: 55 Kg Total catch: 55.20 CATCH/HOUR: 110.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	67.20	122	60.87	317
Trachurus capensis	26.60	54	24.09	320
MYCTOPHIDAE	11.00	2420	9.96	
Todarodes sagittatus	4.20	8	3.80	
Lepidion caudatus	0.60	4	0.72	
Helicolenus dactylopterus	0.00	12	0.26	
Chlorophthalmus punctatus	0.20	6	0.18	
Merluccius capensis female	0.00			319
Merluccius capensis male	0.00			318
Total	110.40		99.98	

PROJECT STATION: 114
 DATE: 15/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2254 Long E 1408
 start stop duration
 TIME :02:06:00 02:11:00 5 (min) Purpose code: 1
 LOG :4692.90 4693.20 0.30 Area code : 1
 FDEPTH: 116 116 GearCond.code:
 BDEPTH: 116 116 Validity code:
 Towing dir: 360° Wire out: 150 m Speed: 30 kn*10
 Sorted: 8 Kg Total catch: 8.55 CATCH/HOUR: 102.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachurus capensis	48.00	948	46.78	302
Sardinops ocellata	27.60	284	28.90	303
Thyrsites atun	15.60	12	15.20	
Engraulis capensis	10.80	564	10.53	304
Etruscan whitehead	0.60	12	0.58	
Total	102.60		99.99	

PROJECT STATION: 121
 DATE: 15/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2259 Long E 1338
 start stop duration
 TIME :22:29:00 22:44:00 15 (min) Purpose code: 1
 LOG :4867.30 4868.10 0.80 Area code : 1
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 147 147 Validity code:
 Towing dir: 70° Wire out: 150 m Speed: 32 kn*10
 Sorted: 19 Kg Total catch: 37.65 CATCH/HOUR: 150.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachurus capensis	133.20	916	88.45	321
Sardinops ocellata	15.20	132	10.09	322
Merluccius capensis	2.20	20	1.46	
Total	150.60		100.00	

PROJECT STATION: 115
 DATE: 15/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2240 Long E 1403
 start stop duration
 TIME :06:56:00 07:26:00 30 (min) Purpose code: 3
 LOG :4743.40 4744.90 1.50 Area code : 1
 FDEPTH: 113 111 GearCond.code:
 BDEPTH: 113 111 Validity code:
 Towing dir: 360° Wire out: 450 m Speed: 30 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
N O C A T C H	0.00			
Total				

PROJECT STATION: 122
 DATE: 16/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2249 Long E 1330
 start stop duration
 TIME :00:36:00 00:51:00 15 (min) Purpose code: 1
 LOG :4885.40 4886.40 1.00 Area code : 1
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 230 231 Validity code:
 Towing dir: 6° Wire out: 150 m Speed: 38 kn*10
 Sorted: 52 Kg Total catch: 52.20 CATCH/HOUR: 208.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachurus capensis	202.40	1112	96.93	323
Sardinops ocellata	6.40	60	3.07	324
Total	208.80		100.00	

PROJECT STATION: 116
 DATE: 15/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2241 Long E 1351
 start stop duration
 TIME :09:12:00 09:42:00 30 (min) Purpose code: 3
 LOG :4761.60 4762.90 1.30 Area code : 1
 FDEPTH: 128 128 GearCond.code:
 BDEPTH: 128 128 Validity code:
 Towing dir: 360° Wire out: 500 m Speed: 24 kn*10
 Sorted: 12 Kg Total catch: 47.15 CATCH/HOUR: 174.30

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	160.30	7028	91.97	305
Sufflogobius bibarbatatus	14.00	1568	8.03	306
Total	174.30		100.00	

PROJECT STATION: 123
 DATE: 16/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2242 Long E 1253
 TIME :07:10:00 07:45:00 35 (min) Purpose code: 3
 LOG :4939.50 4941.30 1.80 Area code : 1
 FDEPTH: 432 432 GearCond.code:
 BDEPTH: 432 432 Validity code:
 Towing dir: 340° Wire out: 1300 m Speed: 30 kn*10
 Sorted: 29 Kg Total catch: 77.27 CATCH/HOUR: 132.46

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Trachyrhinus scabrurus	42.94	247	32.42	
Nezumia sp	28.29	585	21.36	
Helicolenus dactylopterus	21.09	82	15.92	
Todarodes sagittatus	10.00	20	8.15	
Merluccius paradoxus	8.57	12	6.47	325
Deania calcea	6.43	10	4.85	
Hoplostethus melanopus	5.91	87	4.46	
Galeus polli	2.93	26	2.14	
Epigonus pandionis	2.83	77	2.14	
Plesionika sp	1.03	403	0.78	
MYCTOPHIDAE	1.03	159	0.78	
Aristeus varidens	0.51	77	0.39	
Ebinania costaeannarie	0.10	5	0.08	
GONOSTOMATIDAE	0.10	15	0.08	
Merluccius paradoxus female	0.00			326
Total	132.46		100.02	

PROJECT STATION: 124
 DATE: 16/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2234 Long E 1303
 TIME :09:49:00 10:19:00 30 (min) Purpose code: 3
 LOG :4958.50 4960.10 1.60 Area code : 1
 FDEPTH: 300 298 GearCond.code:
 BDEPTH: 300 298 Validity code:
 Towing dir: 350° Wire out: 900 m Speed: 32 kn*10
 Sorted: 153 Kg Total catch: 218.88 CATCH/HOUR: 437.76

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Merluccius capensis	240.60	670	54.96	327
Trachurus capensis	105.60	294	24.12	330
MYCTOPHIDAE	28.80	702	6.50	
Todarodes sagittatus	24.00	43	5.43	
Schedophilus huttoni	12.40	6	2.83	
Chlorophthalmus punctatus	11.18	648	2.55	
Helicolenus dactylopterus	7.20	432	1.64	
Galeus polli	2.40	48	0.55	
Lophius upricephalus	1.92	6	0.44	
Nezumia sp	1.44	30	0.33	
Coelorrhinus fasciatus	1.20	24	0.29	
TORPEDO MOBILIANA	1.04	2	0.24	
Merluccius capensis female	0.00			329
Merluccius capensis male	0.00			328
Total	437.76		99.99	

PROJECT STATION: 125
 DATE: 16/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2234 Long E 1315
 TIME :12:10:00 12:40:00 30 (min) Purpose code: 3
 LOG :4976.40 4978.20 1.80 Area code : 1
 FDEPTH: 261 259 GearCond.code:
 BDEPTH: 261 259 Validity code:
 Towing dir: 340° Wire out: 800 m Speed: 35 kn*10
 Sorted: 81 Kg Total catch: 107.50 CATCH/HOUR: 215.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Merluccius capensis	103.20	456	48.00	321
Trachurus capensis	92.00	452	42.79	334
Echinorhinus brucus	9.60	2	4.47	
Sufflogobius bibarbatu	3.20	398	1.49	
Todarodes sagittatus	2.40	4	1.12	
Chlorophthalmus punctatus	1.60	168	0.74	
Helicolenus dactylopterus	1.20	136	0.56	
Galeus polli	1.20	8	0.56	
Solenocera africana	0.60	164	10.28	
Merluccius capensis female	0.00			333
Merluccius capensis male	0.00			332
Total	215.00		100.01	

PROJECT STATION: 126
 DATE: 16/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2229 Long E 1328
 TIME :14:30:00 15:00:00 30 (min) Purpose code: 3
 LOG :4995.10 4996.80 1.70 Area code : 1
 FDEPTH: 195 197 GearCond.code:
 BDEPTH: 195 197 Validity code:
 Towing dir: 330° Wire out: 700 m Speed: 39 kn*10
 Sorted: 50 Kg Total catch: 276.00 CATCH/HOUR: 552.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Merluccius capensis	542.40	3012	98.20	335
Thyrsvet atun	7.80	2	1.41	
Austrogobius microlepis	1.80	8	0.33	
Merluccius capensis female	0.00			337
Merluccius capensis male	0.00			336
Total	552.00		100.00	

PROJECT STATION: 127
 DATE: 16/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2226 Long E 1333
 TIME :16:11:00 16:41:00 30 (min) Purpose code: 3
 LOG :5000.30 5008.00 1.70 Area code : 1
 FDEPTH: 138 140 GearCond.code:
 BDEPTH: 138 140 Validity code:
 Towing dir: 350° Wire out: 550 m Speed: 33 kn*10
 Sorted: Kg Total catch: 923.40 CATCH/HOUR: 1846.80

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Merluccius capensis	1846.80	9576	100.00	338
Merluccius capensis female	0.00			340
Merluccius capensis male	0.00			339
Total	1846.80		100.00	

PROJECT STATION: 128
 DATE: 16/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2223 Long E 1342
 TIME :18:27:00 18:57:00 30 (min) Purpose code: 3
 LOG :5020.40 5022.00 1.60 Area code : 1
 FDEPTH: 126 126 GearCond.code:
 BDEPTH: 126 126 Validity code:
 Towing dir: 345° Wire out: 500 m Speed: 33 kn*10
 Sorted: 6 Kg Total catch: 696.60 CATCH/HOUR: 1393.20

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Merluccius capensis	1393.20	93744	100.00	341
Total	1393.20		100.00	

PROJECT STATION: 129
 DATE: 16/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2224 Long E 1351
 TIME :20:40:00 20:55:00 15 (min) Purpose code: 1
 LOG :5037.00 5037.80 0.80 Area code : 1
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 120 120 Validity code:
 Towing dir: 355° Wire out: 150 m Speed: 32 kn*10
 Sorted: 39 Kg Total catch: 58.87 CATCH/HOUR: 235.48

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Trachurus capensis	190.80	3460	81.93	342
Sardinops ocellata	36.20	304	15.41	343
Engraulis capensis	8.40	424	3.57	344
Total	235.48		100.01	

PROJECT STATION: 130
 DATE: 16/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2231 Long E 1402
 TIME :22:46:00 23:01:00 15 (min) Purpose code: 1
 LOG :5054.60 5055.30 0.70 Area code : 1
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 107 108 Validity code:
 Towing dir: 360° Wire out: 150 m Speed: 28 kn*10
 Sorted: 19 Kg Total catch: 28.94 CATCH/HOUR: 115.76

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Trachurus capensis	78.60	2100	67.90	345
Engraulis capensis	19.56	1232	16.99	347
Sardinops ocellata	13.80	128	11.92	348
Thyrsvet atun	3.20	8	2.76	
Etruncus whiteheadi	0.60	44	0.52	
Total	115.76		100.00	

PROJECT STATION: 131
 DATE: 17/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2229 Long E 1412
 TIME :06:35:00 06:50:00 15 (min) Purpose code: 1
 LOG :5068.50 5069.30 0.80 Area code : 1
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 77 76 Validity code:
 Towing dir: 360° Wire out: 150 m Speed: 33 kn*10
 Sorted: 4 Kg Total catch: 20.75 CATCH/HOUR: 83.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Trachurus capensis	74.00	3920	69.16	348
Sardinops ocellata	8.00	100	9.64	
Engraulis capensis	1.00	60	1.20	
Total	83.00		100.00	

PROJECT STATION: 132
 DATE: 17/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2219 Long E 1405
 TIME :04:03:00 04:18:00 15 (min) Purpose code: 1
 LOG :5101.40 5102.10 0.70 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 83 81 Validity code:
 Towing dir: 23° Wire out: 150 m Speed: 32 kn*10
 Sorted: 5 Kg Total catch: 64.60 CATCH/HOUR: 258.40

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Trachurus capensis	252.00	8040	97.52	349
Engraulis capensis	4.00	288	1.55	350
Sardinops ocellata	2.40	24	0.93	
Total	258.40		100.00	

PROJECT STATION: 133
 DATE: 17/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2208 Long E 1403
 TIME :06:29:00 06:44:00 15 (min) Purpose code: 1
 LOG :5123.00 5123.80 0.80 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 72 70 Validity code:
 Towing dir: 87° Wire out: 150 m Speed: 32 kn*10
 Sorted: 13 Kg Total catch: 67.25 CATCH/HOUR: 269.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Trachurus capensis	265.00	15644	98.51	351
Engraulis capensis	2.80	200	1.04	
Etruncus whiteheadi	1.20	120	0.45	
Total	269.00		100.00	

PROJECT STATION: 134
 DATE: 17/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2203 Long E 1330
 TIME :12:21:00 12:51:00 30 (min) Purpose code: 3
 LOG :5180.10 5182.00 1.90 Area code : 1
 FDEPTH: 135 137 GearCond.code:
 BDEPTH: 135 137 Validity code:
 Towing dir: 340° Wire out: 550 m Speed: 37 kn*10
 Sorted: 24 Kg Total catch: 48.20 CATCH/HOUR: 96.40

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP.NO.
Merluccius capensis	88.40	524	91.70	352
Sufflogobius bibarbatu	8.00	912	8.30	
Merluccius capensis female	0.00			354
Merluccius capensis male	0.00			353
Total	96.40		100.00	

PROJECT STATION: 136
 DATE: 17/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2206 Long E 1322
 start stop duration Purpose code: 3
 TIME :15:09:00 15:29:00 30 (min) Area code : 1
 LOG :5195.10 5196.80 1.70 GearCond.code:
 FDEPTH: 190 188 Validity code:
 BDEPTH: 190 188
 Towing dir: 340° Wire out: 700 m Speed: 35 kn*10
 Sorted: 98 Kg Total catch: 1482.00 CATCH/HOUR: 2964.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	2613.00	17490	88.16	358
Trachurus capensis	321.00	2880	10.83	358
Pterothrissus bellioi	18.00	90	0.61	
Chelidonichthys capensis	12.00	30	0.40	
Merluccius capensis female	0.00			357
Merluccius capensis male	0.00			356
Total	2964.00		100.00	

PROJECT STATION: 136
 DATE: 17/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2214 Long E 1303
 start stop duration Purpose code: 3
 TIME :19:35:00 20:05:00 30 (min) Area code : 1
 LOG :5222.40 5224.20 1.80 GearCond.code:
 FDEPTH: 264 266 Validity code:
 BDEPTH: 264 266
 Towing dir: 360° Wire out: 800 m Speed: 36 kn*10
 Sorted: 50 Kg Total catch: 528.05 CATCH/HOUR: 1056.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	866.00	3880	82.00	359
Trachurus capensis	133.00	700	12.59	362
Chlorophthalmus punctatus	22.50	3240	2.15	
Solenocera africana	13.50	3330	1.28	
Helicolenus dactylopterus	9.00	630	0.85	
Sufflogobius bibarbatus	8.10	290	0.77	
Pterothrissus bellioi	4.00	40	0.38	
Merluccius capensis female	0.00			361
Merluccius capensis male	0.00			360
Total	1056.10		100.00	

PROJECT STATION: 137
 DATE: 18/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2203 Long E 1320
 start stop duration Purpose code: 1
 TIME :02:45:00 03:00:00 15 (min) Area code : 1
 LOG :5293.00 5293.90 0.90 GearCond.code:
 FDEPTH: 10 10 Validity code:
 BDEPTH: 179 178
 Towing dir: 318° Wire out: 150 m Speed: 30 kn*10
 Sorted: 90 Kg Total catch: 90.80 CATCH/HOUR: 363.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	90.80	3412	100.00	363
Total	90.80		100.00	

PROJECT STATION: 138
 DATE: 18/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2222 Long E 1250
 start stop duration Purpose code: 3
 TIME :10:35:00 11:05:00 30 (min) Area code : 1
 LOG :5335.60 5337.10 1.50 GearCond.code:
 FDEPTH: 379 383 Validity code:
 BDEPTH: 379 383
 Towing dir: 340° Wire out: 1150 m Speed: 30 kn*10
 Sorted: 294 Kg Total catch: 357.77 CATCH/HOUR: 715.54

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Centrophorus granulosus	409.00	136	57.16	
Helicolenus dactylopterus	90.90	606	12.70	366
Merluccius paradoxus	62.00	84	8.66	364
Todarodes sagittatus	44.40	108	6.21	
Krill	17.40	4	2.18	
Deania calcea	15.60	34	2.18	
Neoharriotta pinnata	14.20	6	1.98	
Galeus pollii	11.40	156	1.59	
Schedophilus huttoni	10.70	6	1.50	
Trachurus capensis	9.00	36	1.26	
Trachipterus trachipterus	8.80	2	1.23	
MYCTOPHIDAE	7.20	1548	1.01	
Coelorrinchus fasciatus	5.40	120	0.75	
Raja caudospinosa	4.80	6	0.67	
Epigonus pandionis	2.70	36	0.38	
Nezumia sp	1.80	60	0.25	
Lepidion caudatus	0.12	6	0.02	
Selachophidium guentheri	0.12	6	0.02	
Merluccius paradoxus female	0.00			365
Total	715.54		100.00	

PROJECT STATION: 139
 DATE: 18/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2210 Long E 1249
 start stop duration Purpose code: 3
 TIME :16:32:00 17:02:00 30 (min) Area code : 1
 LOG :5382.40 5384.30 1.90 GearCond.code:
 FDEPTH: 351 350 Validity code:
 BDEPTH: 351 350
 Towing dir: 340° Wire out: 1100 m Speed: 35 kn*10
 Sorted: 84 Kg Total catch: 115.75 CATCH/HOUR: 231.50

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius paradoxus	131.20	232	56.67	367
Todarodes sagittatus	48.80	96	20.22	
Helicolenus dactylopterus	16.20	276	7.00	
Galeus pollii	15.60	180	4.14	
Lophius upsicephalus	7.00	4	3.02	
Trachurus capensis	6.00	12	2.59	
MYCTOPHIDAE	2.40	396	1.04	
Hoplostethus melanopus	1.80	30	0.78	
Krill	1.20	1	0.52	
Pandalina sp.	1.20	12	0.52	
Chlorophthalmus punctatus	0.60	18	0.26	
Nezumia sp	0.60	12	0.26	
Coelorrinchus fasciatus	0.60	12	0.26	
Epigonus pandionis	0.30	6	0.13	
Merluccius paradoxus female	0.00			368
Merluccius paradoxus male	0.00			368
Total	231.50		100.01	

PROJECT STATION: 140
 DATE: 18/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2200 Long E 1302
 start stop duration Purpose code: 3
 TIME :19:00:00 19:30:00 30 (min) Area code : 1
 LOG :5402.50 5404.20 1.70 GearCond.code:
 FDEPTH: 280 275 Validity code:
 BDEPTH: 280 275
 Towing dir: 180° Wire out: 900 m Speed: 34 kn*10
 Sorted: 86 Kg Total catch: 1049.58 CATCH/HOUR: 2099.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	1666.80	9942	79.40	373
Merluccius capensis	373.70	1430	17.80	370
Chlorophthalmus punctatus	28.80	2664	1.37	
Solenocera africana	10.80	4932	0.51	
Helicolenus dactylopterus	10.80	1476	0.51	
Sufflogobius bibarbatus	7.20	936	0.34	
Lophius upsicephalus	1.75	4	0.08	
Merluccius capensis female	0.00			372
Merluccius capensis male	0.00			371
Total	2099.86		100.01	

PROJECT STATION: 141
 DATE: 18/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2209 Long E 1300
 start stop duration Purpose code: 3
 TIME :20:38:00 21:08:00 30 (min) Area code : 1
 LOG :5412.90 5414.60 1.70 GearCond.code:
 FDEPTH: 275 275 Validity code:
 BDEPTH: 275 275
 Towing dir: 185° Wire out: 900 m Speed: 34 kn*10
 Sorted: 63 Kg Total catch: 350.10 CATCH/HOUR: 700.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	356.60	1670	50.93	374
Trachurus capensis	308.40	1944	44.04	377
Solenocera africana	11.40	3724	1.63	
Sufflogobius bibarbatus	7.60	1520	1.09	
Helicolenus dactylopterus	5.22	456	0.76	
Chlorophthalmus punctatus	3.80	228	0.54	
Lophius upsicephalus	3.60	12	0.81	
Galeus pollii	2.40	60	0.34	
Coelorrinchus fasciatus	1.08	12	0.15	
Merluccius capensis female	0.00			376
Merluccius capensis male	0.00			375
Total	700.20		99.99	

PROJECT STATION: 142
 DATE: 19/ 2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2145 Long E 1317
 start stop duration Purpose code: 1
 TIME :02:30:00 02:45:00 15 (min) Area code : 1
 LOG :5464.80 5465.60 0.80 GearCond.code:
 FDEPTH: 5 5 Validity code:
 BDEPTH: 150 150
 Towing dir: 345° Wire out: 150 m Speed: 29 kn*10
 Sorted: 7 Kg Total catch: 168.00 CATCH/HOUR: 672.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	672.00	13912	100.00	378
Total	672.00		100.00	

PROJECT STATION: 143
 DATE: 19/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2146 Long E 1254
 start stop duration Purpose code: 3
 TIME :07:07:00 07:47:00 40 (min) Area code : 1
 LOG :5498.60 5500.70 2.10 GearCond.code:
 FDEPTH: 301 300 Validity code:
 BDEPTH: 301 300
 Towing dir: 340° Wire out: 900 m Speed: 32 kn*10
 Sorted: 172 Kg Total catch: 215.14 CATCH/HOUR: 322.71

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	142.35	167	44.11	379
Schedophilus huttoni	59.25	45	18.36	
Todarodes sagittatus	58.05	117	17.99	
Centrolophus niger	20.25	6	6.27	
Trachurus capensis	16.65	45	5.16	
Chlorophthalmus punctatus	9.45	491	2.93	
Helicolenus dactylopterus	6.30	333	1.95	
Trachipterus trachipterus	4.88	2	1.51	
Lophius upsicephalus	1.80	5	0.56	
Galeus pollii	1.40	18	0.43	
Coelorrinchus fasciatus	0.90	5	0.28	
Synsagropsis microlepis	0.90	9	0.28	
Solenocera africana	0.54	66	0.17	
Merluccius capensis female	0.00			381
Merluccius capensis male	0.00			380
Total	322.72		100.00	

PROJECT STATION: 144
 DATE: 19/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2151 Long E 1306
 start stop duration Purpose code: 3
 TIME :09:48:00 10:18:00 30 (min) Area code : 1
 LOG :5519.40 5520.80 1.40 GearCond.code:
 FDEPTH: 220 220 Validity code:
 BDEPTH: 220 220
 Towing dir: 360° Wire out: 700 m Speed: 28 kn*10
 Sorted: 31 Kg Total catch: 31.98 CATCH/HOUR: 63.96

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	57.60	308	90.06	382
Trachurus capensis	3.90	14	5.94	
Pterothrissus bellioi	2.40	12	3.75	
Sufflogobius bibarbatus	0.16	8	0.25	
Merluccius capensis female	0.00			384
Merluccius capensis male	0.00			383
Total	63.96		100.00	

PROJECT STATION: 145
 DATE: 19/2/90 GEAR TYPE: BT No:1 POSITION: Lat 2143 Long 1307
 TIME :11:13:00 11:43:00 30 (min) Purpose code: 3
 LOG :5527.20 5528.50 1.30 Area code : 1
 FDEPTH: 150 194 GearCond.code: 1
 BDEPTH: 190 194 Validity code:
 Towing dir: 360° Wire out: 650 m Speed: 26 kn*10
 Sorted: 20 Kg Total catch: 58.65 CATCH/HOUR: 117.30

PROJECT STATION: 152
 DATE: 20/2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2127 Long E 1331
 TIME :03:18:00 03:28:00 10 (min) Purpose code: 1
 LOG :5654.10 5654.60 0.50 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 104 103 Validity code:
 Towing dir: 20° Wire out: 150 m Speed: 29 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Merluccius capensis	115.80 1342	98.72	385
Leptodopus caudatus	1.00 8	0.85	
Dentex macropthalmus	0.50 2	0.43	
Merluccius capensis female	0.00		387
Merluccius capensis male	0.00		386
Total	117.30	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
N O C A T C H	0.00		
Total			

PROJECT STATION: 146
 DATE: 19/2/90 GEAR TYPE: PT No:6 POSITION: Lat S 2143 Long E 1313
 TIME :13:13:00 13:43:00 30 (min) Purpose code: 1
 LOG :5539.00 5540.20 1.20 Area code : 1
 FDEPTH: 60 60 GearCond.code: 1
 BDEPTH: 153 159 Validity code:
 Towing dir: 285° Wire out: 200 m Speed: 30 kn*10
 Sorted: 21 Kg Total catch: 21.05 CATCH/HOUR: 42.10

PROJECT STATION: 153
 DATE: 20/2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2122 Long E 1332
 TIME :04:49:00 04:59:00 10 (min) Purpose code: 1
 LOG :5664.70 5665.30 0.60 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 88 91 Validity code:
 Towing dir: 205° Wire out: 150 m Speed: 30 kn*10
 Sorted: Kg Total catch: 0.30 CATCH/HOUR: 1.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Thyreites atun	41.60 12	98.81	
Squalus megalops	0.50 2	1.19	
Total	42.10	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Trachurus capensis	1.20 72	66.67	
Engraulis capensis	0.60 60	33.33	
Total	1.80	100.00	

PROJECT STATION: 147
 DATE: 19/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2145 Long E 1319
 TIME :15:09:00 15:39:00 30 (min) Purpose code: 3
 LOG :5551.70 5553.20 1.50 Area code : 1
 FDEPTH: 147 147 GearCond.code: 1
 BDEPTH: 147 147 Validity code:
 Towing dir: 340° Wire out: 550 m Speed: 30 kn*10
 Sorted: 27 Kg Total catch: 870.60 CATCH/HOUR: 1740.80

PROJECT STATION: 154
 DATE: 20/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2121 Long E 1326
 TIME :07:17:00 07:47:00 30 (min) Purpose code: 3
 LOG :5686.80 5688.40 1.60 Area code : 1
 FDEPTH: 106 106 GearCond.code: 1
 BDEPTH: 106 106 Validity code:
 Towing dir: 330° Wire out: 400 m Speed: 32 kn*10
 Sorted: 1 Kg Total catch: 3.70 CATCH/HOUR: 7.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Merluccius capensis	1740.80 11328	100.00	388
Merluccius capensis female	0.00		390
Merluccius capensis male	0.00		389
Total	1740.80	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Sufflogobius bibarbatatus	7.00 1374	94.59	
Merluccius capensis	0.40 8	5.41	
Total	7.40	100.00	

PROJECT STATION: 148
 DATE: 19/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2141 Long E 1334
 TIME :17:40:00 18:10:00 30 (min) Purpose code: 3
 LOG :5573.40 5575.20 1.80 Area code : 1
 FDEPTH: 111 112 GearCond.code: 1
 BDEPTH: 111 112 Validity code:
 Towing dir: 330° Wire out: 450 m Speed: 36 kn*10
 Sorted: 22 Kg Total catch: 79.60 CATCH/HOUR: 159.20

PROJECT STATION: 155
 DATE: 20/2/90 GEAR TYPE: PT No:6 POSITION: Lat S 2125 Long E 1318
 TIME :09:10:00 09:24:00 14 (min) Purpose code: 1
 LOG :5698.80 5699.50 0.70 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 123 123 Validity code:
 Towing dir: 360° Wire out: 200 m Speed: 30 kn*10
 Sorted: 13 Kg Total catch: 110.96 CATCH/HOUR: 475.54

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Sufflogobius bibarbatatus	153.60 30160	95.48	391
Trachurus capensis	4.80 198	3.02	392
Sardinops ocellata	0.80 8	0.50	
Total	159.20	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Trachurus capensis	474.86 16063	99.85	395
Etrumeus whiteheadi	0.69 69	0.15	
Total	475.55	100.01	

PROJECT STATION: 149
 DATE: 19/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2135 Long E 1346
 TIME :20:00:00 20:45:00 45 (min) Purpose code: 3
 LOG :5592.90 5593.70 0.80 Area code : 1
 FDEPTH: 49 50 GearCond.code: 1
 BDEPTH: 49 50 Validity code:
 Towing dir: 330° Wire out: 200 m Speed: 30 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

PROJECT STATION: 156
 DATE: 20/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2125 Long E 1318
 TIME :10:13:00 10:28:00 15 (min) Purpose code: 3
 LOG :5704.10 5704.80 0.70 Area code : 1
 FDEPTH: 124 126 GearCond.code: 1
 BDEPTH: 124 126 Validity code:
 Towing dir: 340° Wire out: 500 m Speed: 28 kn*10
 Sorted: 13 Kg Total catch: 38.10 CATCH/HOUR: 152.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
N O C A T C H	0.00		
Total			

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Sufflogobius bibarbatatus	117.60 21692	77.17	403
Merluccius capensis	34.80 252	22.83	400
Merluccius capensis female	0.00		402
Merluccius capensis male	0.00		401
Total	152.40	100.00	

PROJECT STATION: 150
 DATE: 19/2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2132 Long E 1346
 TIME :21:16:00 21:26:00 10 (min) Purpose code: 3
 LOG :5602.00 5602.40 0.40 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 45 46 Validity code:
 Towing dir: 345° Wire out: 150 m Speed: 24 kn*10
 Sorted: 6 Kg Total catch: 6.80 CATCH/HOUR: 40.80

PROJECT STATION: 157
 DATE: 20/2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2131 Long E 1308
 TIME :12:26:00 12:56:00 30 (min) Purpose code: 3
 LOG :5721.40 5723.00 1.60 Area code : 1
 FDEPTH: 163 165 GearCond.code: 1
 BDEPTH: 163 165 Validity code:
 Towing dir: 331° Wire out: 650 m Speed: 28 kn*10
 Sorted: 14 Kg Total catch: 85.20 CATCH/HOUR: 170.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Trachurus capensis	26.70 1074	65.44	393
Etrumeus whiteheadi	8.70 834	21.32	395
Chelidonichthys capensis	3.60 108	8.82	394
Engraulis capensis	1.80 114	4.41	396
Total	40.80	99.99	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Merluccius capensis	151.20 912	68.73	404
Sufflogobius bibarbatatus	19.20 1812	11.27	406
Merluccius capensis female	0.00		405
Merluccius capensis male	0.00		405
Total	170.40	100.00	

PROJECT STATION: 151
 DATE: 20/2/90 GEAR TYPE: PT No:5 POSITION: Lat S 2143 Long E 1339
 TIME :00:58:00 01:08:00 10 (min) Purpose code: 1
 LOG :5633.60 5634.10 0.50 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 100 100 Validity code:
 Towing dir: 325° Wire out: 150 m Speed: 30 kn*10
 Sorted: 2 Kg Total catch: 12.00 CATCH/HOUR: 72.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Trachurus capensis	43.20 1296	60.00	397
Engraulis capensis	25.20 1224	35.00	398
Thyreites atun	2.40 12	3.33	
Sardinops ocellata	1.20 12	1.67	
Total	72.00	100.00	

PROJECT STATION: 150
 POSITION: Lat S 2134 Long E 1301
 GEAR TYPE: BT No:1
 DATE: 20/ 2/90
 start stop duration
 TIME :14:22:00 14:52:00 30 (min) Purpose code: 3
 LOG :5730.40 5737.90 1.50 Area code : 1
 FDEPTH: 254 259 GearCond.code: 1
 BDEPTH: 254 259 Validity code:
 Towing dir: 330° Wire out: 650 m Speed: 29 kn*10
 Sorted: 80 Kg Total catch: 147.15 CATCH/HOUR: 294.30

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	153.00	490	51.99	407
Trachurus capensis	31.60	214	27.73	410
Pterochobius billocci	44.00	232	16.93	411
Sufflogobius bibarbatu	8.00	890	2.72	
S H R I M P S	5.00	480	1.70	
Dcryx splendens	1.20	4	0.41	
Lophius upiscephalus	1.00	2	0.34	
Coelacrinchus fesciatus	0.50	10	0.17	
Merluccius capensis female	0.00			409
Merluccius capensis male	0.00			408
Total	294.30		100.01	

PROJECT STATION: 159
 POSITION: Lat S 2134 Long E 1252
 GEAR TYPE: BT No:1
 DATE: 20/ 2/90
 start stop duration
 TIME :16:34:00 17:04:00 30 (min) Purpose code: 3
 LOG :5753.80 5755.60 1.60 Area code : 1
 FDEPTH: 302 304 GearCond.code: 1
 BDEPTH: 302 304 Validity code:
 Towing dir: 360° Wire out: 900 m Speed: 30 kn*10
 Sorted: 39 Kg Total catch: 66.90 CATCH/HOUR: 133.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	12.00	120	46.34	412
Chlorophthalmus punctatus	21.60	1152	16.14	
Todarodes sagittatus	20.40	36	15.25	
Helicolenus dactylopterus	9.60	612	7.17	
Schedophilus huttoni	7.00	2	5.23	
Solenocera africana	6.00	768	4.48	
Galeus polli	3.60	48	2.69	
MYCTOPHIDAE	2.40	840	1.79	
Coelacrinchus fasciatus	1.20	24	0.90	
Merluccius capensis female	0.00			414
Merluccius capensis male	0.00			413
Total	133.80		99.99	

PROJECT STATION: 160
 POSITION: Lat S 2144 Long E 1241
 GEAR TYPE: BT No:1
 DATE: 20/ 2/90
 start stop duration
 TIME :18:59:00 19:29:00 30 (min) Purpose code: 3
 LOG :5772.50 5774.10 1.60 Area code : 1
 FDEPTH: 420 412 GearCond.code: 1
 BDEPTH: 420 412 Validity code:
 Towing dir: 170° Wire out: 1300 m Speed: 32 kn*10
 Sorted: 41 Kg Total catch: 193.23 CATCH/HOUR: 386.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Hoplostethus melanopus	142.10	3410	36.77	
Trachyrhinus scabrus	86.10	756	22.28	
Todarodes sagittatus	60.20	168	15.58	
Helicolenus dactylopterus	26.60	126	6.88	
Merluccius paradoxus	25.40	38	6.57	415
Galeus polli	12.60	168	3.06	
Plesionika sp	7.00	1735	1.81	
Epigonus pandionis	7.00	238	1.81	
Raja caudaspinosa	6.50	6	1.68	
Aristeus variidens	4.90	560	1.27	
GONOSTOMATIDAE	3.50	462	0.91	
Nezumia sp	2.80	70	0.72	
Deania calcea	1.20	2	0.31	
Ebunania costaceanerie	0.28	14	0.07	
Chlorophthalmus punctatus	0.28	28	0.07	
Merluccius paradoxus female	0.00			417
Merluccius paradoxus male	0.00			416
Total	386.46		99.99	

PROJECT STATION: 161
 POSITION: Lat S 2159 Long E 1300
 GEAR TYPE: PT No:6
 DATE: 20/ 2/90
 start stop duration
 TIME :23:10:30 23:42:00 32 (min) Purpose code: 1
 LOG :5805.70 5807.40 1.70 Area code : 1
 FDEPTH: 140 140 GearCond.code: 1
 BDEPTH: 286 286 Validity code:
 Towing dir: 360° Wire out: 400 m Speed: 30 kn*10
 Sorted: 5 Kg Total catch: 5.30 CATCH/HOUR: 9.94

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Isurus oxyrinchus	9.38	2	94.37	
Trachipterus trachipterus	0.56	2	5.63	
Total	9.94		100.00	

PROJECT STATION: 162
 POSITION: Lat S 2238 Long E 1280
 GEAR TYPE: BT No:1
 DATE: 21/ 2/90
 start stop duration
 TIME :07:43:00 08:13:00 30 (min) Purpose code: 3
 LOG :5875.40 5877.00 1.60 Area code : 1
 FDEPTH: 490 485 GearCond.code: 1
 BDEPTH: 490 485 Validity code:
 Towing dir: 345° Wire out: 1500 m Speed: 32 kn*10
 Sorted: 105 Kg Total catch: 185.80 CATCH/HOUR: 371.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Trachyrhinus scabrus	122.50	1160	35.66	
Merluccius paradoxus	96.30	48	25.91	418
Deania calcea	32.30	26	8.69	
Nezumia sp	30.00	830	8.07	
Centropristis squamosus	22.50	4	6.05	
Helicolenus dactylopterus	18.00	30	4.84	
Hoplostethus melanopus	16.00	210	4.31	
Aristeus variidens	8.20	626	2.21	
ACROMMATIDAE	5.60	2	1.51	
Centroscymnus crepidater	3.50	4	0.94	
Raja caudaspinosa	2.40	2	0.65	
Bathyraconger vicinus	1.00	10	0.27	
CRMPYIDAE	1.00	10	0.27	
Allocyttus verrucosus	0.70	20	0.19	
Notacanthus sexepinis	0.50	10	0.13	
Epigonus pandionis	0.50	20	0.13	
Etmopterus brachyurus	0.40	2	0.11	
Diplodus saderensis	0.20	60	0.05	
Pariphaea sp	0.00	50		
Merluccius paradoxus female	0.00			419
Total	371.60		99.99	

PROJECT STATION: 163
 POSITION: Lat S 2254 Long E 1334
 GEAR TYPE: BT No:1
 DATE: 21/ 2/90
 start stop duration
 TIME :13:50:00 14:05:00 15 (min) Purpose code: 1
 LOG :5940.60 5941.50 0.90 Area code : 1
 FDEPTH: 142 141 GearCond.code: 1
 BDEPTH: 142 141 Validity code:
 Towing dir: 320° Wire out: 550 m Speed: 30 kn*10
 Sorted: 57 Kg Total catch: 2150.30 CATCH/HOUR: 8601.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Merluccius capensis	6645.20	43052	77.26	420
Trachurus capensis	1950.00	11822	22.67	423
Austrogladius microlepis	3.60	12	0.04	
Chelidonichthys capensis	2.40	4	0.03	
Merluccius capensis female	0.00			422
Merluccius capensis male	0.00			421
Total	8601.20		100.00	

PROJECT STATION: 164
 POSITION: Lat S 2339 Long E 1420
 GEAR TYPE: PT No:5
 DATE: 21/ 2/90
 start stop duration
 TIME :20:28:00 20:35:00 7 (min) Purpose code: 1
 LOG :6012.50 6012.80 0.30 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 81 81 Validity code:
 Towing dir: 10° Wire out: 150 m Speed: 31 kn*10
 Sorted: 9 Kg Total catch: 9.40 CATCH/HOUR: 80.57

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Thyrssites atun	37.71	17	46.80	
Engraulis capensis	27.43	1371	34.04	424
Etrumeus whiteheadi	8.57	540	10.64	425
Sardinops ocellata	6.86	86	8.51	426
Total	80.57		99.99	

PROJECT STATION: 165
 POSITION: Lat S 2339 Long E 1420
 GEAR TYPE: PT No:5
 DATE: 21/ 2/90
 start stop duration
 TIME :23:37:00 23:42:00 5 (min) Purpose code: 1
 LOG :6027.50 6027.70 0.20 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 84 84 Validity code:
 Towing dir: 293° Wire out: 150 m Speed: 30 kn*10
 Sorted: 13 Kg Total catch: 13.32 CATCH/HOUR: 159.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Engraulis capensis	109.20	5688	68.32	427
Etrumeus whiteheadi	37.44	1752	23.42	428
Sardinops ocellata	13.20	228	8.26	429
Total	159.84		100.00	

PROJECT STATION: 166
 POSITION: Lat S 2324 Long E 1411
 GEAR TYPE: PT No:5
 DATE: 22/ 2/90
 start stop duration
 TIME :02:48:00 02:53:00 5 (min) Purpose code: 1
 LOG :6069.50 6070.00 0.50 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 123 123 Validity code:
 Towing dir: 360° Wire out: 150 m Speed: 30 kn*10
 Sorted: 6 Kg Total catch: 6.00 CATCH/HOUR: 72.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Thyrssites atun	62.40	72	66.67	
Engraulis capensis	8.40	324	11.67	430
Etrumeus whiteheadi	1.20	24	1.67	
Total	72.00		100.01	

PROJECT STATION: 167
 POSITION: Lat S 2230 Long E 1415
 GEAR TYPE: PT No:5
 DATE: 22/ 2/90
 start stop duration
 TIME :10:05:00 10:10:00 5 (min) Purpose code: 1
 LOG :6141.70 6141.90 0.20 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 60 61 Validity code:
 Towing dir: 160° Wire out: 150 m Speed: 30 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
N O C A T C H	0.00			
Total	0.00			

PROJECT STATION: 168
 POSITION: Lat S 2228 Long E 1412
 GEAR TYPE: PT No:6
 DATE: 22/ 2/90
 start stop duration
 TIME :11:12:00 11:27:00 15 (min) Purpose code: 1
 LOG :6148.20 6149.10 0.90 Area code : 1
 FDEPTH: 5 5 GearCond.code: 1
 BDEPTH: 68 68 Validity code:
 Towing dir: 100° Wire out: 200 m Speed: 36 kn*10
 Sorted: 20 Kg Total catch: 20.00 CATCH/HOUR: 80.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Thyrssites atun	7.60	572	97.00	431
Trachurus capensis	2.40	84	3.00	432
Total	80.00		100.00	

PROJECT STATION: 169
 POSITION: Lat S 2054 Long E 1326
 GEAR TYPE: BT No:1
 DATE: 26/ 2/90
 start stop duration
 TIME :07:43:00 08:13:00 30 (min) Purpose code: 3
 LOG :6406.00 6407.60 1.60 Area code : 1
 FDEPTH: 44 43 GearCond.code: 1
 BDEPTH: 44 43 Validity code:
 Towing dir: 328° Wire out: 200 m Speed: 32 kn*10
 Sorted: Kg Total catch: 0.05 CATCH/HOUR: 0.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP. NO.
	weight	numbers		
Sufflogobius bibarbatu	0.06	4	60.00	
Trachurus capensis	0.04	2	40.00	
Total	0.10		100.00	

PROJECT STATION: 170
 DATE: 26/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2103 Long E 1317
 start stop duration
 TIME :09:26:00 09:50:00 30 (min) Purpose code: 3
 LOG :6417.40 6419.00 1.60 Area code : 1
 FDEPTH: 102 106 GearCond.code:
 BDEPTH: 102 106 Validity code:
 Towing dir: 328° Wire out: 400 m Speed: 32 kn*10

Sorted: 125 Kg Total catch: 125.16 CATCH/HOUR: 250.32

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Sufflogobius bibarbatu	250.00 53000	99.87	
Trachurus capensis	0.32 8	0.13	
Total	250.32	100.00	

PROJECT STATION: 171
 DATE: 26/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2107 Long E 1309
 start stop duration
 TIME :11:18:00 11:48:00 30 (min) Purpose code: 3
 LOG :6429.60 6431.30 1.70 Area code : 1
 FDEPTH: 121 123 GearCond.code:
 BDEPTH: 121 123 Validity code:
 Towing dir: 328° Wire out: 550 m Speed: 34 kn*10

Sorted: 11 Kg Total catch: 123.40 CATCH/HOUR: 246.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Sufflogobius bibarbatu	240.00 24522	97.24	
Merluccius capensis	6.80 66	2.76	433
Merluccius capensis female	0.00		435
Merluccius capensis male	0.00		434
Total	246.80	100.00	

PROJECT STATION: 172
 DATE: 26/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2114 Long E 1258
 start stop duration
 TIME :13:42:00 14:12:00 30 (min) Purpose code: 3
 LOG :6446.30 6447.70 1.40 Area code : 1
 FDEPTH: 225 230 GearCond.code:
 BDEPTH: 225 230 Validity code:
 Towing dir: 360° Wire out: 800 m Speed: 30 kn*10

Sorted: 48 Kg Total catch: 296.20 CATCH/HOUR: 592.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	503.80 3564	85.04	437
Trachurus capensis	39.00 425	6.58	436
Sufflogobius bibarbatu	35.20 5324	5.94	
Portunidae	5.80 32	0.20	
PORTUNIDAE	3.30 44	0.56	
Solenocera africana	3.30 440	0.56	
Dentex macrophthalmus	2.00 10	0.34	
Merluccius capensis female	0.00		439
Merluccius capensis male	0.00		438
Total	592.40	100.00	

PROJECT STATION: 173
 DATE: 26/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2114 Long E 1251
 start stop duration
 TIME :15:48:00 16:18:00 30 (min) Purpose code: 3
 LOG :6459.80 6461.40 1.60 Area code : 1
 FDEPTH: 312 313 GearCond.code:
 BDEPTH: 312 313 Validity code:
 Towing dir: 340° Wire out: 1000 m Speed: 30 kn*10

Sorted: 4 Kg Total catch: 264.68 CATCH/HOUR: 529.36

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	338.20 364	63.89	440
Schedophilus huttoni	119.00 44	22.48	
Todarodes sagittatus	28.80 84	5.44	
Zu elongatus	13.60 4	2.53	
Chlorophthalmus punctatus	10.00 576	1.90	
Dasyatis violacea	7.00 2	1.32	
Galeus polli	4.60 108	0.91	
Helicolenus dactylopterus	3.60 576	0.68	
MYCTOPHIDAE	1.20 360	0.23	
Coelorinchus fasciatus	0.72 36	0.14	
Solenocera africana	0.60 420	0.11	
Austroglossus microlepis	0.60 2	0.11	
Lophius piscipallus	0.40 2	0.08	
Sufflogobius bibarbatu	0.12 84	0.02	
Lepidion caudatus	0.12 36	0.02	
Merluccius capensis female	0.00		442
Merluccius capensis male	0.00		441
Total	529.36	100.00	

PROJECT STATION: 174
 DATE: 26/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2118 Long E 1243
 start stop duration
 TIME :18:05:00 18:35:00 30 (min) Purpose code: 3
 LOG :6474.80 6476.30 1.70 Area code : 1
 FDEPTH: 348 350 GearCond.code:
 BDEPTH: 348 350 Validity code:
 Towing dir: 340° Wire out: 1050 m Speed: 34 kn*10

Sorted: 19 Kg Total catch: 53.38 CATCH/HOUR: 106.76

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Chlorophthalmus punctatus	47.20 2292	44.21	
Galeus polli	18.00 408	16.86	
Todarodes sagittatus	10.60 18	9.93	
Merluccius capensis	9.60 26	8.99	443
Centrophorus granulosus	7.00 2	6.56	
Coelorinchus polli	4.80 144	4.53	
Hoplostethus melanopus	4.00 92	3.75	
Helicolenus dactylopterus	2.80 96	2.62	
MYCTOPHIDAE	1.40 400	1.31	
Solenocera africana	0.68 144	0.64	
Coelorinchus fasciatus	0.52 28	0.49	
S H R I M P S	0.08 48	0.07	
Syngnathus microlepis	0.04 4	0.04	
Laseneba laurysi	0.04 4	0.04	
Merluccius capensis female	0.00		445
Merluccius capensis male	0.00		444
Total	106.76	100.01	

PROJECT STATION: 175
 DATE: 26/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2121 Long E 1234
 start stop duration
 TIME :20:16:00 21:16:00 60 (min) Purpose code: 3
 LOG :6488.80 6492.10 3.30 Area code : 1
 FDEPTH: 452 448 GearCond.code:
 BDEPTH: 452 448 Validity code:
 Towing dir: 350° Wire out: 1350 m Speed: 33 kn*10

Sorted: 56 Kg Total catch: 475.97 CATCH/HOUR: 475.97

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Trachyrhinus scabrus	163.10 1108	34.27	
Centrophorus squamosus	127.50 17	26.79	
Hoplostethus melanopus	72.80 1116	15.30	
Merluccius capensis	52.10 67	10.95	446
Helicolenus dactylopterus	21.00 84	4.41	
Coelorinchus fasciatus	13.30 616	2.79	
Todarodes sagittatus	8.40 14	1.76	
Galeus polli	3.50 35	0.74	
Raja sp	3.50 7	0.74	
Arieteus validens	3.29 315	0.69	
Epigonus denticulatus	2.38 70	0.50	
Lophius upiccephalus	2.28 1	0.46	
Neoharricta pinnata	1.50 1	0.32	
Shrimps, small, non comm.	1.19	0.25	
Diplodus maderensis	0.21 7	0.04	
Merluccius capensis female	0.00		447
Total	475.97	100.01	

PROJECT STATION: 176
 DATE: 26/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2121 Long E 1224
 start stop duration
 TIME :22:32:00 23:32:00 60 (min) Purpose code: 3
 LOG :6499.10 6502.20 3.10 Area code : 1
 FDEPTH: 550 550 GearCond.code:
 BDEPTH: 550 550 Validity code:
 Towing dir: 340° Wire out: 1400 m Speed: 31 kn*10

Sorted: 65 Kg Total catch: 150.96 CATCH/HOUR: 150.96

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Hoplostethus melanopus	62.40 824	41.24	
Merluccius capensis	46.50 52	30.80	448
Trachyrhinus scabrus	12.80 32	8.49	
MYCTOPHIDAE	8.80 1008	5.83	
Deania calcea	6.70 3	4.44	
Nezumia sp	5.60 216	3.71	
Todarodes sagittatus	4.80 8	3.18	
S H R I M P S	1.60 472	1.06	
Galeus polli	1.60 8	1.06	
Parapenaeus longirostris	0.08 24	0.05	
Notacanthus sexpinis	0.08 8	0.05	
Merluccius capensis female	0.00		450
Merluccius capensis male	0.00		449
Total	150.96	100.00	

PROJECT STATION: 177
 DATE: 27/ 2/90 GEAR TYPE: FT No:5 POSITION: Lat S 2055 Long E 1242
 start stop duration
 TIME :03:25:00 03:40:00 15 (min) Purpose code: 1
 LOG :6534.50 6535.20 0.70 Area code : 1
 FDEPTH: 80 100 GearCond.code: 3
 BDEPTH: 340 340 Validity code: 4
 Towing dir: 245° Wire out: 250 m Speed: 30 kn*10

Sorted: 6 Kg Total catch: 6.60 CATCH/HOUR: 26.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
MYCTOPHIDAE	20.00 3300	75.76	
Todarodes sagittatus	6.40 12	24.24	
Total	26.40	100.00	

PROJECT STATION: 178
 DATE: 27/ 2/90 GEAR TYPE: FT No:5 POSITION: Lat S 2039 Long E 1317
 start stop duration
 TIME :08:02:00 08:12:00 10 (min) Purpose code: 1
 LOG :6577.20 6577.60 0.40 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 5 56 Validity code:
 Towing dir: 350° Wire out: 150 m Speed: 25 kn*10

Sorted: 26 Kg Total catch: 2511.40 CATCH/HOUR: 15068.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Sardinops ocellata	15000.00 164148	99.55	451
Engraulis capensis	45.60 3420	0.30	
Etroneus whiteheadi	17.10 1140	0.11	
Trachurus capensis	5.70 1110	0.04	
Total	15068.40	100.00	

PROJECT STATION: 179
 DATE: 27/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2028 Long E 1318
 start stop duration
 TIME :08:53:00 09:14:00 21 (min) Purpose code: 3
 LOG :6580.40 6581.50 1.10 Area code : 1
 FDEPTH: 36 35 GearCond.code:
 BDEPTH: 36 35 Validity code:
 Towing dir: 335° Wire out: 175 m Speed: 31 kn*10

Sorted: 4 Kg Total catch: 4.98 CATCH/HOUR: 14.23

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Trachurus capensis	12.57 471	88.33	452
Galeichthys feliceps	1.14 3	8.01	
Chelidichthys capensis	0.51 11	3.58	
Total	14.22	99.92	

PROJECT STATION: 180
 DATE: 27/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2022 Long E 1311
 start stop duration
 TIME :11:02:00 11:31:00 30 (min) Purpose code: 3
 LOG :6597.80 6599.60 1.80 Area code : 1
 FDEPTH: 44 43 GearCond.code:
 BDEPTH: 44 43 Validity code:
 Towing dir: 345° Wire out: 200 m Speed: 36 kn*10

Sorted: Kg Total catch: 0.18 CATCH/HOUR: 0.36

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Trachurus capensis	0.20 8	55.56	
Sufflogobius bibarbatu	0.16 12	44.44	
Total	0.36	100.00	

PROJECT STATION: 181
 DATE: 27/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2025
 start stop duration Long E 1214
 TIME :12:42:00 13:12:00 30 (min) Purpose code: 3
 LOG :6609.20 6610.40 1.20 Area code : 1
 FDEPTH: 91 91 GearCond.code:
 BDEPTH: 91 91 Validity code:
 Towing dir: 345° Wire out: 400 m Speed: 27 kn*10
 Sorted: 1 Kg Total catch: 9.40 CATCH/HOUR: 18.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Sufflogobius bibarbatu	18.00	1830	95.74
Schedophilus huttoni	0.60	2	3.19
Trachurus capensis	0.20	28	1.06
Total	18.80		99.99

PROJECT STATION: 182
 DATE: 27/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2035
 start stop duration Long E 1237
 TIME :17:05:00 17:35:00 30 (min) Purpose code: 3
 LOG :6647.50 6648.90 1.40 Area code : 1
 FDEPTH: 280 273 GearCond.code:
 BDEPTH: 280 273 Validity code:
 Towing dir: 345° Wire out: 950 m Speed: 26 kn*10
 Sorted: 57 Kg Total catch: 381.00 CATCH/HOUR: 762.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Merluccius capensis	332.80	1196	43.67
Sufflogobius bibarbatu	148.20	23394	19.45
Solenocera africana	132.60	30940	17.40
Pterothrissus belloci	104.00	1060	13.65
Trachurus capensis	39.00	200	5.12
Austroglossus microlepis	2.20	10	0.29
Pterothrissus belloci	2.08	364	0.27
Dentax macrophthalmus	0.60	2	0.08
MYCTOPHIDAE	0.26	182	0.03
Chlorophthalmus punctatus	0.26	52	0.03
Merluccius capensis female	0.00		456
Merluccius capensis male	0.00		455
Total	762.00		99.99

PROJECT STATION: 183
 DATE: 27/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2040
 start stop duration Long E 1229
 TIME :19:14:00 19:44:00 30 (min) Purpose code: 3
 LOG :6661.70 6663.50 1.80 Area code : 1
 FDEPTH: 313 312 GearCond.code:
 BDEPTH: 313 312 Validity code:
 Towing dir: 340° Wire out: 950 m Speed: 32 kn*10
 Sorted: 10 Kg Total catch: 43.82 CATCH/HOUR: 87.64

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Solenocera africana	28.20	8582	32.18
Chlorophthalmus punctatus	19.80	1456	22.59
Merluccius capensis	8.60	22	9.81
Helicolenus dactylopterus	8.40	1840	9.58
Galeus polli	7.20	432	8.22
Lophius upsiccephalus	5.40	14	6.16
Zu elongatus	3.80	2	4.34
Todaropsis sagittatus	3.40	14	3.88
Trachurus capensis	1.40	8	1.60
MYCTOPHIDAE	0.60	216	0.60
Coelorinchus fasciatus	0.48	18	0.55
Hoplostethus melanopus	0.36	18	0.41
Merluccius capensis female	0.00		460
Merluccius capensis male	0.00		459
Total	87.64		100.00

PROJECT STATION: 184
 DATE: 27/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2043
 start stop duration Long E 1217
 TIME :21:26:00 22:26:00 60 (min) Purpose code: 3
 LOG :6676.50 6680.00 3.10 Area code : 1
 FDEPTH: 398 402 GearCond.code:
 BDEPTH: 398 402 Validity code:
 Towing dir: 320° Wire out: 1200 m Speed: 31 kn*10
 Sorted: 73 Kg Total catch: 266.18 CATCH/HOUR: 266.18

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Hoplostethus melanopus	88.20	2245	33.14
Helicolenus dactylopterus	66.60	264	25.02
Merluccius capensis	37.90	83	14.24
Todaropsis sagittatus	27.90	153	10.48
Coelorinchus polli	9.00	333	3.28
Galeus polli	7.20	72	2.70
Centrophorus squamosus	5.00	1	1.08
Lophius upsiccephalus	4.05	9	1.52
Neoharricotta pinnata	4.00	2	1.50
Shrimps, small, non comm.	3.33	1832	1.25
Centrophorus granulosus	3.00	1	1.13
GONOSTOMATIDAE	2.16	433	0.81
Todaropsis eblanac	2.16	54	0.81
Trachyrhinus scabrus	1.80	27	0.68
Coelorinchus fasciatus	1.08	27	0.41
Aristeus varidens	0.90	168	0.34
Lepidopus caudatus	0.81	9	0.30
Epigonus pandionis	0.64	36	0.24
Selachophidium guentheri	0.36	9	0.14
Merichthys scolopacea	0.09	9	0.03
Merluccius capensis female	0.00		463
Merluccius capensis male	0.00		462
Total	266.18		100.00

PROJECT STATION: 185
 DATE: 27/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2046
 start stop duration Long E 1215
 TIME :23:41:00 00:41:00 60 (min) Purpose code: 3
 LOG :6687.50 6690.70 3.20 Area code : 1
 FDEPTH: 500 498 GearCond.code:
 BDEPTH: 500 498 Validity code:
 Towing dir: 310° Wire out: 1300 m Speed: 32 kn*10
 Sorted: 61 Kg Total catch: 149.06 CATCH/HOUR: 149.06

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Trachyrhinus scabrus	73.20	360	49.11
Deania calcea	37.20	6	24.96
Merluccius paradoxus	12.10	10	8.12
Coelorinchus polli	10.80	444	7.25
Hoplostethus melanopus	4.80	48	3.22
GONOSTOMATIDAE	3.60	568	2.42
Helicolenus dactylopterus	3.40	11	2.28
Aristeus varidens	1.92	216	1.29
Laaprogrammus uxutub	0.72	24	0.48
Lepidopus caudatus	0.60	12	0.40
Raja caudaspinosa	0.60	1	0.40
Shrimps, small, non comm.	0.12	108	0.08
Merluccius paradoxus female	0.00		466
Merluccius paradoxus male	0.00		465
Total	149.06		100.01

PROJECT STATION: 186
 DATE: 28/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2022
 start stop duration Long E 1217
 TIME :07:41:00 08:11:00 30 (min) Purpose code: 3
 LOG :6735.70 6737.40 1.70 Area code : 1
 FDEPTH: 296 295 GearCond.code:
 BDEPTH: 296 295 Validity code:
 Towing dir: 320° Wire out: 900 m Speed: 34 kn*10
 Sorted: 9 Kg Total catch: 51.70 CATCH/HOUR: 103.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Solenocera africana	31.20	7072	30.17
Pterothrissus belloci	30.40	200	29.40
Merluccius capensis	25.60	82	24.76
Shrimps, small, non comm.	5.20		5.03
Sufflogobius bibarbatu	4.00	324	3.87
Galeus polli	1.92	68	1.66
Austroglossus microlepis	1.60	8	1.55
Chlorophthalmus punctatus	0.96	68	0.93
Trachurus capensis	0.90	20	0.87
Coelorinchus fasciatus	0.60	20	0.58
Dentax macrophthalmus	0.48	2	0.44
Coelorinchus polli	0.32	4	0.31
Merluccius capensis	0.24	14	0.23
Merluccius capensis female	0.00		469
Merluccius capensis male	0.00		468
Total	103.40		100.00

PROJECT STATION: 187
 DATE: 28/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2018
 start stop duration Long E 1228
 TIME :10:02:00 10:32:00 30 (min) Purpose code: 3
 LOG :6752.90 6754.30 1.40 Area code : 1
 FDEPTH: 257 257 GearCond.code:
 BDEPTH: 257 257 Validity code:
 Towing dir: 320° Wire out: 800 m Speed: 28 kn*10
 Sorted: 33 Kg Total catch: 33.64 CATCH/HOUR: 67.68

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Merluccius capensis	48.88	224	72.22
Trachurus capensis	15.40	318	22.75
Sufflogobius bibarbatu	2.00	642	2.96
Solenocera africana	1.40	320	2.07
Merluccius capensis female	0.00		472
Merluccius capensis male	0.00		471
Total	67.68		100.00

PROJECT STATION: 188
 DATE: 28/ 2/90 GEAR TYPE: BT No:1 POSITION: Lat S 2014
 start stop duration Long E 1237
 TIME :14:38:00 15:08:00 30 (min) Purpose code: 1
 LOG :6773.50 6775.30 1.80 Area code : 1
 FDEPTH: 152 142 GearCond.code: 3
 BDEPTH: 152 142 Validity code: 8
 Towing dir: 65° Wire out: 600 m Speed: 34 kn*10
 Sorted: 57 Kg Total catch: 4798.08 CATCH/HOUR: 9596.16

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Trachurus capensis	7476.00	15240	77.91
Merluccius capensis	1797.60	10080	18.73
Dentax macrophthalmus	252.00	2016	2.63
Chelidonichthys capensis	47.04	168	0.49
Pterothrissus belloci	23.52	168	0.25
Merluccius capensis female	0.00		476
Merluccius capensis male	0.00		475
Total	9596.16		100.01

PROJECT STATION: 189
 DATE: 28/ 2/90 GEAR TYPE: PT No:6 POSITION: Lat S 2000
 start stop duration Long E 1255
 TIME :23:25:00 23:40:00 15 (min) Purpose code: 1
 LOG :6808.10 6808.70 0.60 Area code : 1
 FDEPTH: 5 5 GearCond.code: 7
 BDEPTH: 61 60 Validity code: 4
 Towing dir: 336° Wire out: 150 m Speed: 24 kn*10
 Sorted: 3 Kg Total catch: 3.00 CATCH/HOUR: 12.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
weight	numbers		
Trachurus capensis	10.80	396	90.00
Engraulis capensis	1.20	108	10.00
Total	12.00		100.00

PROJECT STATION: 190
 DATE: 1/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 1938 Long E 1245
 start stop duration Purpose code: 1
 TIME :03:00:00 03:05:00 5 (min) Area code : 1
 LOG :6835.20 6835.40 0.20 GearCond.code:
 FDEPTH: 10 10 Validity code:
 BDEPTH: 54 54
 Towing dir: 336° Wire out: 150 m Speed: 30 kn*10
 Sorted: 56 Kg Total catch: 56.00 CATCH/HOUR: 672.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Trachurus capensis	672.00	100.00	480
Total	672.00	100.00	

PROJECT STATION: 191
 DATE: 1/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1957 Long E 1226
 start stop duration Purpose code: 3
 TIME :09:46:00 10:16:00 30 (min) Area code : 1
 LOG :6895.40 6897.00 1.60 GearCond.code:
 FDEPTH: 162 160 Validity code:
 BDEPTH: 162 160
 Towing dir: 325° Wire out: 700 m Speed: 31 kn*10
 Sorted: 49 Kg Total catch: 1498.50 CATCH/HOUR: 2997.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Merluccius capensis	2076.00	69.27	481
Dentex macrophthalms	510.00	17.02	482
Pterothrissus belloci	306.00	10.21	
Chelidonichthys capensis	66.00	2.20	
Trachurus capensis	36.00	1.20	
Lepidopus caudatus	2.40	0.08	
Synagrops microlepis	0.60	0.02	
Sufflogobius bibarbatus	0.00		
Total	2997.00	100.00	

PROJECT STATION: 192
 DATE: 1/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 2003 Long E 1209
 start stop duration Purpose code: 3
 TIME :12:05:00 12:35:00 30 (min) Area code : 1
 LOG :6912.00 6913.30 1.30 GearCond.code:
 FDEPTH: 252 254 Validity code:
 BDEPTH: 252 254
 Towing dir: 325° Wire out: 850 m Speed: 28 kn*10
 Sorted: 168 Kg Total catch: 666.70 CATCH/HOUR: 1333.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Merluccius capensis	1026.00	76.95	483
Pterothrissus belloci	104.00	7.80	
Sufflogobius bibarbatus	76.00	5.70	
C R A B S	28.00	2.10	
Trachurus capensis	26.40	1.98	
Todarodes sagittatus	24.00	1.80	
Dentex macrophthalms	20.40	1.53	
Chlorophthalmus punctatus	12.00	0.90	
Coelorinchus fasciatus	8.00	0.60	
Solenocera africana	4.00	0.30	
Lophius upsicephalus	2.40	0.18	
Centrolophus niger	1.40	0.10	
MYCTOPHIDAE	0.80	0.06	
Merluccius capensis female	0.00		485
Merluccius capensis male	0.00		484
Total	1333.40	100.00	

PROJECT STATION: 193
 DATE: 1/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 2009 Long E 1200
 start stop duration Purpose code: 3
 TIME :14:45:00 15:15:00 30 (min) Area code : 1
 LOG :6931.70 6933.10 1.40 GearCond.code:
 FDEPTH: 338 341 Validity code:
 BDEPTH: 338 341
 Towing dir: 330° Wire out: 1100 m Speed: 26 kn*10
 Sorted: 75 Kg Total catch: 160.77 CATCH/HOUR: 321.54

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Trachurus capensis	112.00	34.83	486
Helicolenus dactylopterus	95.40	29.67	
Chlorophthalmus punctatus	23.20	7.28	
MYCTOPHIDAE	23.40	7.28	
Galus polli	21.60	6.72	
Todarodes sagittatus	10.80	3.36	
Centrophorus granulosus	10.60	3.30	
Zenopsis conchifer	7.60	2.36	
Coelorinchus polli	3.60	1.12	
C R A B S	3.60	1.12	
Hoplostethus melanopus	3.60	1.12	
Nezumia sp	1.80	0.56	
Coelorinchus fasciatus	1.80	0.56	
Solenocera africana	0.36	0.11	
Shrimps, small, non comm.	0.18	0.06	
Total	321.54	100.00	

PROJECT STATION: 194
 DATE: 1/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 2012 Long E 1151
 start stop duration Purpose code: 3
 TIME :17:10:00 17:45:00 35 (min) Area code : 1
 LOG :6947.70 6949.40 1.70 GearCond.code:
 FDEPTH: 508 499 Validity code:
 BDEPTH: 508 499
 Towing dir: 327° Wire out: 1300 m Speed: 29 kn*10
 Sorted: 22 Kg Total catch: 257.20 CATCH/HOUR: 440.91

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Hoplostethus melanopus	228.00	51.71	
Trachyrinus scabrurus	111.43	25.27	
Nezumia sp	29.14	6.61	
Centrophorus squamosus	19.37	4.39	
Neoharriotta pinnata	14.40	3.27	
Merluccius paradoxus	14.40	3.27	487
Arieteus varidens	4.00	1.09	
Epigonus denticulatus	3.43	0.78	
Galus polli	3.09	0.70	
Todarodes sagittatus	2.91	0.66	
Psychrolutes macrocephalus	2.40	0.54	
GONOSTOMATIDAE	2.23	0.51	
Lamprologomus exutus	1.54	0.35	
ALEPOCEPHALIDAE	1.37	0.31	
Shrimps, small, non comm.	1.03	0.23	
HAJIDAE	0.69	0.16	
Notacanthus xenopinus	0.51	0.12	
Neulichthys scolopacea	0.17	0.04	
Merluccius paradoxus female	0.00		488
Total	440.91	100.00	

PROJECT STATION: 195
 DATE: 1/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1952 Long E 1150
 start stop duration Purpose code: 3
 TIME :20:22:00 21:22:00 60 (min) Area code : 1
 LOG :6969.00 6972.10 3.10 GearCond.code:
 FDEPTH: 373 373 Validity code:
 BDEPTH: 373 373
 Towing dir: 335° Wire out: 1100 m Speed: 31 kn*10
 Sorted: 22 Kg Total catch: 237.10 CATCH/HOUR: 237.10

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Hoplostethus melanopus	80.50	33.95	
Merluccius capensis	58.50	24.67	489
Helicolenus dactylopterus	37.10	15.65	
Epigonus denticulatus	18.20	7.68	
Lophius upsicephalus	15.80	6.66	
Coelorinchus polli	0.40	0.17	
Galus polli	7.00	2.95	
Nezumia sp	5.60	2.36	
MYCTOPHIDAE	3.50	1.48	
Todarodes sagittatus	2.00	0.84	
Lepidopus caudatus	0.50	0.21	
Merluccius capensis male	0.00		491
Merluccius capensis female	0.00		490
Total	237.10	99.99	

PROJECT STATION: 196
 DATE: 1/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1952 Long E 1143
 start stop duration Purpose code: 3
 TIME :22:56:00 23:56:00 60 (min) Area code : 1
 LOG :6982.90 6985.90 3.00 GearCond.code:
 FDEPTH: 451 453 Validity code:
 BDEPTH: 451 453
 Towing dir: 330° Wire out: 1350 m Speed: 30 kn*10
 Sorted: 155 Kg Total catch: 409.80 CATCH/HOUR: 409.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Hoplostethus melanopus	92.00	22.45	
Helicolenus dactylopterus	80.00	19.52	
Merluccius paradoxus	78.70	19.20	492
Trachyrinus scabrurus	70.00	17.08	
Centrophorus granulosus	43.50	10.63	
Tetracurus cuvieri	15.00	3.66	
Galus polli	4.00	0.98	
Nezumia sp	3.40	0.83	
Epigonus pandionis	1.60	0.39	
Shrimps, small, non comm.	1.20	0.29	
MYCTOPHIDAE	0.40	0.10	
Merluccius paradoxus female	0.00		493
Total	409.80	100.00	

PROJECT STATION: 197
 DATE: 2/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1956 Long E 1139
 start stop duration Purpose code: 3
 TIME :02:05:00 03:05:00 60 (min) Area code : 1
 LOG :7000.20 7002.80 2.60 GearCond.code:
 FDEPTH: 567 576 Validity code:
 BDEPTH: 567 576
 Towing dir: 354° Wire out: 1500 m Speed: 25 kn*10
 Sorted: 21 Kg Total catch: 177.60 CATCH/HOUR: 177.60

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Trachyrinus scabrurus	132.50	63.34	
Helicolenus dactylopterus	47.50	26.75	
Merluccius paradoxus	12.80	7.21	494
Neoharriotta pinnata	2.10	1.18	
Galus polli	2.00	1.13	
Epigonus pandionis	0.50	0.28	
Ebinania costaeannariae	0.20	0.11	
Phrynichthys wedli	0.00		
Merluccius paradoxus female	0.00		495
Total	177.60	100.00	

PROJECT STATION: 198
 DATE: 2/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1938 Long E 1214
 start stop duration Purpose code: 3
 TIME :07:32:00 08:02:00 30 (min) Area code : 1
 LOG :7045.50 7047.50 1.60 GearCond.code:
 FDEPTH: 220 220 Validity code:
 BDEPTH: 220 220
 Towing dir: 360° Wire out: 850 m Speed: 30 kn*10
 Sorted: 38 Kg Total catch: 112.20 CATCH/HOUR: 224.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Merluccius capensis	118.00	52.58	496
Sufflogobius bibarbatus	28.00	12.48	
Dentex macrophthalms	25.00	11.14	499
Todarodes sagittatus	10.00	4.46	
Squalus megalops	8.00	3.57	
PORTUNIDAE	8.00	3.57	
Solenocera africana	7.00	3.12	
Synagrops microlepis	5.00	2.23	
Pterothrissus belloci	5.00	2.23	
Hyperoglyphe moselli	5.00	2.23	
Trachurus capensis	4.60	2.05	
Lophius upsicephalus	0.80	0.36	
Merluccius capensis female	0.00		498
Merluccius capensis male	0.00		497
Total	224.40	100.00	

PROJECT STATION: 199
 DATE: 2/ 3/90 GEAR TYPE: FT No:6 POSITION: Lat S 1937 Long E 1219
 start stop duration Purpose code: 1
 TIME :09:53:00 10:05:00 12 (min) Area code : 1
 LOG :7060.60 7061.40 0.80 GearCond.code:
 FDEPTH: 75 90 Validity code:
 BDEPTH: 178 178
 Towing dir: 260° Wire out: 300 m Speed: 30 kn*10
 Sorted: 30 Kg Total catch: 511.10 CATCH/HOUR: 2555.50

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
Trachurus capensis	2500.00	67.83	500
Taractichthys longipinnis	51.50	2.02	
Galeichthys feliceps	4.00	0.16	
Total	2555.50	100.00	

PROJECT STATION: 200
 DATE: 2/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1934 Long E 1226
 start stop duration
 TIME :11:49:00 12:19:00 30 (min) Purpose code: 3
 LOG :7073.20 7074.90 1.70 Area code : 1
 FDEPTH: 131 132 GearCond.code:
 BDEPTH: 131 132 Validity code:
 Towing dir: 335° Wire out: 550 m Speed: 32 kn*10
 Sorted: 30 Kg Total catch: 200.40 CATCH/HOUR: 400.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	383.60	1960	95.71	501
Sufflogobius bibarbatu	12.60	2044	3.14	
Galeichthys feliceps	3.60	4	0.90	
PORTUNIDAE	0.14	14	0.03	
Shrimps, small, non comm.	0.14	70	0.03	
Merluccius capensis female	0.00			503
Merluccius capensis male	0.00			502
Total	400.08		99.81	

PROJECT STATION: 201
 DATE: 2/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1920 Long E 1215
 start stop duration
 TIME :17:30:00 17:45:00 15 (min) Purpose code: 3
 LOG :7120.60 7121.30 0.70 Area code : 1
 FDEPTH: 164 166 GearCond.code:
 BDEPTH: 164 166 Validity code:
 Towing dir: 336° Wire out: 650 m Speed: 24 kn*10
 Sorted: 52 Kg Total catch: 1059.30 CATCH/HOUR: 4237.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	2032.00	10400	47.96	504
Trachurus capensis	1680.00	27816	39.85	507
Dentex macropthalmus	384.00	3200	9.06	508
Synagrops microlepis	40.00	2560	0.94	
Sufflogobius bibarbatu	40.00	2400	0.94	
Pterothrissus belloci	32.00	160	0.76	
PORTUNIDAE	16.00	480	0.38	
Mustelus palumbus	13.20	4	0.31	
Merluccius capensis female	0.00			506
Merluccius capensis male	0.00			505
Total	4237.20		100.00	

PROJECT STATION: 202
 DATE: 2/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1923 Long E 1209
 start stop duration
 TIME :18:58:00 19:26:00 30 (min) Purpose code: 3
 LOG :7150.10 7151.50 1.40 Area code : 1
 FDEPTH: 222 220 GearCond.code:
 BDEPTH: 222 220 Validity code:
 Towing dir: 345° Wire out: 850 m Speed: 28 kn*10
 Sorted: 26 Kg Total catch: 576.40 CATCH/HOUR: 1152.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	1029.60	5828	89.31	509
Synagrops microlepis	35.20	2276	3.05	
Trachurus capensis	30.80	264	4.67	
Pterothrissus belloci	26.40	220	2.29	
Sufflogobius bibarbatu	22.00	1232	1.91	
Chlorophthalmus punctatus	3.52	264	0.31	
Solenocera africana	3.08	968	0.27	
Austroglossus microlepis	2.00	4	0.17	
PORTUNIDAE	0.88	44	0.08	
Merluccius capensis female	0.00			511
Merluccius capensis male	0.00			510
Total	1152.80		100.06	

PROJECT STATION: 203
 DATE: 2/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1936 Long E 1137
 start stop duration
 TIME :23:20:00 00:20:00 60 (min) Purpose code: 3
 LOG :7167.60 7171.30 3.70 Area code : 1
 FDEPTH: 401 403 GearCond.code:
 BDEPTH: 401 403 Validity code:
 Towing dir: 350° Wire out: 1200 m Speed: 36 kn*10
 Sorted: 133 Kg Total catch: 322.20 CATCH/HOUR: 322.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius paradoxus	119.70	196	34.36	512
Hoplostethus melanopus	72.00	1600	22.35	
Galeus polli	42.00	800	13.04	
Helicolenus dactylopterus	30.00	900	9.31	
Epigonus pandionis	18.00	600	5.59	
Todarodes sagittatus	14.00	40	4.35	
Nezumia sp	14.00	300	4.35	
Coelorinchus fasciatus	8.00	140	2.48	
Centrophorus granulosus	7.80	2	2.42	
Lophius uppicephalus	3.20	2	0.99	
Necharricta pinnata	2.10	1	0.65	
Shrimps, small, non comm.	0.40	200	0.12	
Merluccius paradoxus male	0.00			514
Merluccius paradoxus female	0.00			513
Total	322.20		100.01	

PROJECT STATION: 204
 DATE: 3/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1934 Long E 1132
 start stop duration
 TIME :01:47:00 02:47:00 60 (min) Purpose code: 3
 LOG :7179.90 7182.90 3.00 Area code : 1
 FDEPTH: 504 508 GearCond.code:
 BDEPTH: 504 508 Validity code:
 Towing dir: 355° Wire out: 1350 m Speed: 33 kn*10
 Sorted: 209 Kg Total catch: 413.70 CATCH/HOUR: 413.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius paradoxus	136.00	161	32.67	515
Trachyrinus scabrus	92.00	620	22.24	
Centrophorus granulosus	53.00	5	12.81	
Nezumia sp	50.00	1680	12.09	
Todarodes sagittatus	30.00	60	7.25	
Hoplostethus melanopus	20.00	260	4.83	
Galeus polli	10.00	60	2.42	
Tetrazonurus cuvieri	8.00	60	1.93	
Helicolenus dactylopterus	6.00	40	1.45	
Centrophorus squamosus	3.90	1	0.94	
Lamprogrammus exutus	3.60	20	0.87	
Shrimps, small, non comm.	1.20	140	0.29	
Merluccius paradoxus female	0.00			517
Merluccius paradoxus male	0.00			516
Total	413.70		99.99	

PROJECT STATION: 205
 DATE: 3/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1936 Long E 1127
 start stop duration
 TIME :04:15:00 05:15:00 60 (min) Purpose code: 3
 LOG :7192.50 7195.30 2.80 Area code : 1
 FDEPTH: 603 604 GearCond.code:
 BDEPTH: 603 604 Validity code:
 Towing dir: 345° Wire out: 1600 m Speed: 28 kn*10
 Sorted: 120 Kg Total catch: 291.50 CATCH/HOUR: 291.50

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachyrinus scabrus	69.00	260	23.67	
Centrophorus squamosus	65.50	5	22.47	
Nezumia sp	68.00	1830	22.30	
Merluccius paradoxus	19.40	18	6.66	518
ALFEOCEPHALIDAE	16.00	130	5.49	
Todarodes sagittatus	15.00	30	5.15	
Galeus polli	15.00	110	5.15	
Raja caudaspinosa	7.00	70	2.40	
GONOSTOMATIDAE	5.00	320	1.72	
Ebinania costaeacanaria	3.50	40	1.20	
Selachophidium guentheri	3.00	30	1.03	
C E P H A L O P O D A	2.00	10	0.69	
Lamprogrammus exutus	2.00	20	0.69	
Hoplostethus melanopus	2.00	50	0.69	
Notacanthus sexspinis	1.50	20	0.51	
Geryon maritae	0.40	2	0.14	
Heterocephalus grimaldii	0.20	2	0.07	
NEPHROPHIDAE	0.00	10		
Merluccius paradoxus female	0.00			519
Total	291.50		100.03	

PROJECT STATION: 206
 DATE: 3/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1939 Long E 1137
 start stop duration
 TIME :07:35:00 08:05:00 30 (min) Purpose code: 3
 LOG :7213.30 7215.60 1.70 Area code : 1
 FDEPTH: 372 370 GearCond.code:
 BDEPTH: 372 370 Validity code:
 Towing dir: 340° Wire out: 1150 m Speed: 34 kn*10
 Sorted: 20 Kg Total catch: 116.50 CATCH/HOUR: 233.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Helicolenus dactylopterus	80.00	960	34.33	
Coelorinchus polli	30.00	740	12.88	
Galeus polli	24.00	660	10.30	
Nezumia sp	20.00	1088	8.59	
Hoplostethus melanopus	15.00	620	6.44	
Todarodes sagittatus	12.00	100	5.15	
Lophius uppicephalus	11.60	8	4.38	
Merluccius paradoxus	11.00	12	7.72	522
Centrophorus niger	10.00	10	4.49	
Tetrazonurus cuvieri	5.00	30	2.15	
Epigonus denticulatus	5.00	340	2.15	
Raja caudaspinosa	2.60	2	1.12	
Necharricta pinnata	2.00	2	0.66	
Psychrolutes macrocephalus	1.80	2	0.77	
Merluccius capensis	1.00	2	0.43	520
PORTUNIDAE	0.92	40	0.39	
MYCTOPHIDAE	0.60	200	0.26	
Shrimps, small, non comm.	0.30	190	0.13	
Synagrops microlepis	0.10	20	0.04	
Chlorophthalmus punctatus	0.00	10	0.01	
Merluccius paradoxus female	0.00			523
Merluccius capensis male	0.00			521
Total	233.00		100.01	

PROJECT STATION: 207
 DATE: 3/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1912 Long E 1145
 start stop duration
 TIME :09:37:00 10:07:00 30 (min) Purpose code: 3
 LOG :7225.90 7227.50 1.60 Area code : 1
 FDEPTH: 322 323 GearCond.code:
 BDEPTH: 322 323 Validity code:
 Towing dir: 345° Wire out: 950 m Speed: 32 kn*10
 Sorted: 3 Kg Total catch: 21.70 CATCH/HOUR: 43.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Helicolenus dactylopterus	12.00	600	27.65	
Merluccius capensis	9.00	26	20.74	524
Todarodes sagittatus	5.60	200	12.90	
Hoplostethus melanopus	4.00	160	9.25	
MYCTOPHIDAE	4.00	1576	9.22	
Trachurus capensis	4.00	12	9.22	527
Synagrops microlepis	3.20	224	7.37	
Raja caudaspinosa	0.80	8	1.64	
Chlorophthalmus punctatus	0.48	24	1.11	
Lestidiops sp	0.24	24	0.55	
Solenocera africana	0.08	8	0.18	
Merluccius capensis female	0.00			526
Merluccius capensis male	0.00			525
Total	43.40		100.03	

PROJECT STATION: 208
 DATE: 3/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1907 Long E 1156
 start stop duration
 TIME :11:59:00 12:29:00 30 (min) Purpose code: 3
 LOG :7242.70 7244.00 1.30 Area code : 1
 FDEPTH: 263 265 GearCond.code:
 BDEPTH: 263 265 Validity code:
 Towing dir: 335° Wire out: 800 m Speed: 28 kn*10
 Sorted: 57 Kg Total catch: 563.70 CATCH/HOUR: 1127.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	400.40	1320	35.52	528
Trachurus capensis	360.80	2904	32.00	531
MYCTOPHIDAE	176.00	93852	15.64	
Dentex macropthalmus	145.20	572	12.88	
Centrophorus niger	24.20	44	2.15	
Hexanchus triacrus	10.40	2	0.92	
Galeus polli	6.60	44	0.59	
Brama brama	3.80	2	0.34	
Merluccius capensis female	0.00			529
Merluccius capensis male	0.00			529
Total	1127.40		100.01	

PROJECT STATION: 209
 DATE: 3/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1906 Long E 1202
 start stop duration
 TIME :13:50:00 14:20:00 30 (min) Purpose code: 3
 LOG :7254.60 7256.10 1.50 Area code : 1
 FDEPTH: 215 216 GearCond.code:
 BDEPTH: 215 216 Validity code:
 Towing dir: 340° Wire out: 850 m Speed: 30 kn*10
 Sorted: 48 Kg Total catch: 636.50 CATCH/HOUR: 1273.00

PROJECT STATION: 215
 DATE: 4/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1857 Long E 1137
 start stop duration
 TIME :17:03:00 17:18:00 15 (min) Purpose code: 3
 LOG :7363.10 7368.90 0.80 Area code : 1
 FDEPTH: 277 273 GearCond.code:
 BDEPTH: 277 273 Validity code:
 Towing dir: 335° Wire out: 900 m Speed: 29 kn*10
 Sorted: 46 Kg Total catch: 139.20 CATCH/HOUR: 556.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	739.20 1988	58.07	532
Trachurus capensis	375.20 7224	29.47	534
Synagrops microlepis	56.00 3696	4.40	
Dentex macrophthalma	44.80 168	3.52	
Sufflogobius bibarbatu	44.80 2800	3.52	
Squalus megalops	11.60 6	0.91	
Austroglossus microlepis	1.40 4	0.11	
Merluccius capensis female	0.00		533
Total	1273.00	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	420.00 1296	75.43	541
Trachurus capensis	86.40 1368	15.52	544
Coelorinchus fasciatus	13.20 540	2.37	
Helicolenus dactylopterus	12.00 1824	2.16	
Todarodes sagittatus	8.40 24	1.51	
Dentex macrophthalma	4.80 12	0.86	
Synagrops microlepis	4.20 276	0.75	
MYCTOPHIDAE	3.00 2244	0.54	
Solenocera africana	3.00 744	0.54	
Sufflogobius bibarbatu	1.20 360	0.22	
Chlorophthalmus punctatus	0.60 24	0.11	
Merluccius capensis female	0.00		543
Merluccius capensis male	0.00		542
Total	556.80	100.00	

PROJECT STATION: 210
 DATE: 3/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1900 Long E 1216
 start stop duration
 TIME :16:27:00 16:57:00 30 (min) Purpose code: 3
 LOG :7274.70 7275.90 1.20 Area code : 1
 FDEPTH: 105 104 GearCond.code:
 BDEPTH: 105 104 Validity code:
 Towing dir: 335° Wire out: 400 m Speed: 26 kn*10
 Sorted: 60 Kg Total catch: 60.16 CATCH/HOUR: 120.32

PROJECT STATION: 216
 DATE: 4/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1859 Long E 1127
 start stop duration
 TIME :19:14:00 20:14:00 60 (min) Purpose code: 3
 LOG :7375.50 7378.30 2.80 Area code : 3
 FDEPTH: 416 495 GearCond.code:
 BDEPTH: 416 495 Validity code:
 Towing dir: 355° Wire out: 1300 m Speed: 29 kn*10
 Sorted: 22 Kg Total catch: 193.38 CATCH/HOUR: 193.38

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Sufflogobius bibarbatu	120.00 7016	99.73	
Trachurus capensis	0.22 68	0.18	535
Schedophilus huttoni	0.10 2	0.08	
Total	120.32	99.99	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Nezumia sp	54.40 1662	28.13	
Trachyrhinus scabrus	48.00 480	24.82	
Hoplostethus melanopus	26.40 1168	13.65	
Merluccius capensis	15.00 11	7.76	545
Galeus polli	12.00 104	6.21	
Helicolenus dactylopterus	10.40 72	5.38	
Todarodes sagittatus	10.40 16	5.38	
Shrimps, small, non com.	4.80 20	2.48	
Lepidion caudatus	2.40 40	1.24	
Centrocyttus crepidater	2.40 8	1.24	
GONOSTOMATIDAE	1.76 312	0.91	
Epionus denticulatus	1.60 64	0.83	
Aristeus varidans	1.20 130	0.62	
Psychrolutes macrocephalus	0.96 16	0.50	
Laemonema laureysi	0.80 8	0.41	
Geryon maritae	0.70 3	0.36	
Trachurus capensis	0.16 16	0.08	
Merluccius capensis female	0.00		546
Total	193.38	100.00	

PROJECT STATION: 211
 DATE: 3/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1858 Long E 1221
 start stop duration
 TIME :18:03:00 18:33:00 30 (min) Purpose code: 3
 LOG :7284.70 7286.20 1.50 Area code : 1
 FDEPTH: 85 86 GearCond.code:
 BDEPTH: 85 86 Validity code:
 Towing dir: 330° Wire out: 300 m Speed: 30 kn*10
 Sorted: Kg Total catch: 0.02 CATCH/HOUR: 0.04

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Trachurus capensis	0.04 20	100.00	
Total	0.04	100.00	

PROJECT STATION: 217
 DATE: 5/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1816 Long E 1121
 start stop duration
 TIME :14:52:00 15:22:00 30 (min) Purpose code: 3
 LOG :7498.20 7499.70 1.50 Area code : 3
 FDEPTH: 254 267 GearCond.code:
 BDEPTH: 254 267 Validity code:
 Towing dir: 355° Wire out: 900 m Speed: 30 kn*10
 Sorted: 73 Kg Total catch: 2619.30 CATCH/HOUR: 5238.60

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Trachurus capensis	0.04 2	100.00	
Sufflogobius bibarbatu	0.00 2		
Total	0.04	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	4500.00 11916	85.90	547
Chlorophthalmus punctatus	261.60 10934	5.90	
Helicolenus dactylopterus	231.00 13860	4.41	
Trachurus capensis	57.20 1300	1.09	
MYCTOPHIDAE	46.20 5542	0.88	
Coelorinchus fasciatus	46.20 1078	0.88	
Centrolophus niger	41.60 52	0.79	
Todarodes sagittatus	41.60 52	0.79	
Galeus polli	7.80 52	0.15	
Raja sp	5.20 2	0.10	
Merluccius capensis male	0.00		549
Merluccius capensis female	0.00		548
Total	5238.60	99.99	

PROJECT STATION: 213
 DATE: 4/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1850 Long E 1149
 start stop duration
 TIME :12:43:00 12:58:00 15 (min) Purpose code: 3
 LOG :7325.20 7326.50 1.30 Area code : 1
 FDEPTH: 238 238 GearCond.code:
 BDEPTH: 238 238 Validity code:
 Towing dir: 335° Wire out: 900 m Speed: 28 kn*10
 Sorted: 47 Kg Total catch: 2758.20 CATCH/HOUR: 11032.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	7548.40 38724	68.42	536
Trachurus capensis	3451.60 58088	31.28	539
Raja caudagnosa	20.40 12	0.18	
Coelorinchus capensis	12.40 8	0.11	
Merluccius capensis female	0.00		538
Merluccius capensis male	0.00		537
Total	11032.80	99.99	

PROJECT STATION: 218
 DATE: 5/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1810 Long E 1127
 start stop duration
 TIME :16:47:00 17:17:00 30 (min) Purpose code: 3
 LOG :7508.60 7509.90 1.30 Area code : 3
 FDEPTH: 406 426 GearCond.code:
 BDEPTH: 406 426 Validity code:
 Towing dir: 355° Wire out: 1150 m Speed: 28 kn*10
 Sorted: 10 Kg Total catch: 92.73 CATCH/HOUR: 185.46

PROJECT STATION: 214
 DATE: 4/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 1851 Long E 1145
 start stop duration
 TIME :14:10:00 15:00:00 50 (min) Purpose code: 1
 LOG :7346.00 7348.90 2.90 Area code : 1
 FDEPTH: 60 80 GearCond.code:
 BDEPTH: 261 248 Validity code:
 Towing dir: 60° Wire out: 200 m Speed: 30 kn*10
 Sorted: 1 Kg Total catch: 7.00 CATCH/HOUR: 8.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Trachurus capensis	8.40 324	100.00	540
Total	8.40	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP. NO.
	weight numbers		
Merluccius capensis	45.40 52	24.48	550
Nezumia sp	30.00 1920	16.16	
Helicolenus dactylopterus	20.40 192	11.00	
Shrimps, small, non com.	14.40 468	7.76	
Coelorinchus fasciatus	14.40 468	7.76	
Hoplostethus melanopus	14.40 1032	7.76	
Todarodes sagittatus	12.00 60	6.47	
Aristeus varidans	11.40 1260	6.15	
Galeus polli	6.00 48	3.24	
MYCTOPHIDAE	6.00 1140	3.24	
Tetragonus cuvieri	2.40 24	1.29	
Laemonema laureysi	2.40 36	1.29	
Lophius upsicephalus	1.80 2	0.97	
Epionus denticulatus	1.68 192	0.91	
Geryon maritae	1.10 48	0.59	
Synagrops microlepis	1.08 48	0.59	
GONOSTOMATIDAE	0.60 24	0.32	
Merluccius capensis female	0.00		552
Merluccius capensis male	0.00		551
Total	185.46	99.99	

PROJECT STATION: 219
 DATE: 5/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1751 Long E 1121
 start stop duration
 TIME :21:26:00 22:26:00 60 (min) Purpose code: 3
 LOG :7543.00 7545.90 2.90 Area code : 3
 FDEPTH: 535 605 GearCond.code:
 BDEPTH: 535 605 Validity code:
 Towing dir: 320° Wire out:1400 m Speed: 29 kn*10

Sorted: 7 Kg Total catch: 88.00 CATCH/HOUR: 88.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Hoplostethus melanopus	64.00	4320	72.73	
Trachurus capensis	12.00	192	13.64	553
GONOSTOMATIDAE	6.40	816	7.27	
Thyeanoteuthis rhombus	3.20	48	3.64	
Centronomus crepidater	1.60	16	1.82	
Lepidopus caudatus	0.48	16	0.55	
Nemichthys scolopacea	0.32	48	0.36	
Total	88.00		100.01	

PROJECT STATION: 224
 DATE: 8/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1719 Long E 1135
 start stop duration
 TIME :11:03:00 11:33:00 30 (min) Purpose code: 3
 LOG :7818.50 7820.10 1.60 Area code : 3
 FDEPTH: 121 122 GearCond.code:
 BDEPTH: 121 122 Validity code:
 Towing dir: 345° Wire out: 500 m Speed: 32 kn*10

Sorted: 41 Kg Total catch: 1263.60 CATCH/HOUR: 2527.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	1104.00	17376	43.68	570
Dentex macrophthalmaus	902.40	9312	35.71	569
Merluccius capensis	386.00	1404	15.27	566
Chelidonichthys capensis	48.00	192	1.90	
Synagrops microlepis	38.40	2408	1.52	
Galeichthys feliceps	28.00	96	1.14	
Austrogleus microlepis	14.40	96	0.57	
Atractodes aequidens	5.20	2	0.21	
Merluccius capensis male	0.00			568
Merluccius capensis female	0.00			567
Total	2527.20		100.00	

PROJECT STATION: 220
 DATE: 6/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1746 Long E 1143
 start stop duration
 TIME :11:21:00 11:51:00 30 (min) Purpose code: 3
 LOG :7595.50 7597.10 1.50 Area code : 3
 FDEPTH: 80 71 GearCond.code:
 BDEPTH: 80 71 Validity code:
 Towing dir: 350° Wire out: 300 m Speed: 30 kn*10

Sorted: 16 Kg Total catch: 606.70 CATCH/HOUR: 1217.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	1200.00	3864	98.57	554
Callorhynchus capensis	9.60	4	0.79	
Mustelus mustelus	7.80	2	0.64	
Total	1217.40		100.00	

PROJECT STATION: 225
 DATE: 9/ 3/90 GEAR TYPE: PT No:5 POSITION:Lat S 1737 Long E 1132
 start stop duration
 TIME :03:22:00 03:32:00 10 (min) Purpose code: 1
 LOG :7965.30 7965.60 0.50 Area code : 3
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 157 155 Validity code:
 Towing dir: 130° Wire out: 150 m Speed: 25 kn*10

Sorted: 150 Kg Total catch: 150.00 CATCH/HOUR: 900.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	900.00	21462	100.00	571
Total	900.00		100.00	

PROJECT STATION: 221
 DATE: 8/ 3/90 GEAR TYPE: PT No:6 POSITION:Lat S 1722 Long E 1140
 start stop duration
 TIME :00:23:00 00:43:00 20 (min) Purpose code: 1
 LOG :7757.60 7758.50 0.90 Area code : 3
 FDEPTH: 25 20 GearCond.code:
 BDEPTH: 75 75 Validity code:
 Towing dir: 360° Wire out: 100 m Speed: 29 kn*10

Sorted: 22 Kg Total catch: 284.20 CATCH/HOUR: 852.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Engraulis capensis	815.00	44760	95.71	555
Trachurus capensis	18.30	18	2.15	556
Trachurus capensis	9.60	240	1.13	557
Etrumeus whiteheadi	3.00	24	0.35	
Raja sp	2.40	3	0.28	
Galeichthys feliceps	1.80	6	0.21	
Sardinops ocellata	1.50	9	0.18	
Total	852.60		100.01	

PROJECT STATION: 226
 DATE: 9/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1749 Long E 1139
 start stop duration
 TIME :07:44:00 08:14:00 30 (min) Purpose code: 3
 LOG :8004.90 8006.50 1.60 Area code : 3
 FDEPTH: 117 117 GearCond.code:
 BDEPTH: 117 117 Validity code:
 Towing dir: 355° Wire out: 500 m Speed: 32 kn*10

Sorted: 50 Kg Total catch: 3140.40 CATCH/HOUR: 6280.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Dentex macrophthalmaus	2389.00	38648	52.35	573
Trachurus capensis	1440.00	3144	22.53	574
Merluccius capensis	600.00	3240	9.55	575
Pterothrissus bellioi	408.00	4800	6.50	
Mustelus mustelus	168.20	106	2.68	
Chelidonichthys capensis	168.00	840	2.67	
Galeichthys feliceps	132.00	240	2.10	
Atractodes aequidens	53.20	34	0.85	572
Synagrops microlepis	12.60	1680	0.19	
Oxymotus centrina	8.20	2	0.13	
Mustelus mustelus	2.00	2	0.05	
Spondyliosoma cantharus	1.20	2	0.02	
Merluccius capensis female	0.00			577
Merluccius capensis male	0.00			576
Total	6280.80		100.00	

PROJECT STATION: 222
 DATE: 8/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1719 Long E 1120
 start stop duration
 TIME :07:27:00 07:57:00 30 (min) Purpose code: 3
 LOG :7798.20 7799.90 1.70 Area code : 3
 FDEPTH: 355 342 GearCond.code:
 BDEPTH: 355 342 Validity code:
 Towing dir: 10° Wire out:1050 m Speed: 34 kn*10

Sorted: 26 Kg Total catch: 368.20 CATCH/HOUR: 736.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	537.60	2436	73.00	558
Helicolenus dactylopterus	44.80	560	6.08	
Coelorhynchus fasciatus	42.00	1428	5.70	
Galeus polli	33.60	532	4.56	
Laemonema laureysi	28.00	336	3.80	
Chlorophthalmus punctatus	14.00	448	1.90	
Synagrops microlepis	14.00	812	1.90	
Todarodes sagittatus	8.40	56	1.14	
MYCTOPHIDAE	6.44	1036	0.87	
Beryx splendens	4.76	28	0.65	
Raja sp	2.80	56	0.38	
Merluccius capensis female	0.00			560
Merluccius capensis male	0.00			559
Total	736.40		99.98	

PROJECT STATION: 227
 DATE: 9/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1750 Long E 1131
 start stop duration
 TIME :09:39:00 10:09:00 30 (min) Purpose code: 3
 LOG :8016.00 8017.60 1.60 Area code : 3
 FDEPTH: 195 195 GearCond.code:
 BDEPTH: 195 195 Validity code:
 Towing dir: 345° Wire out: 800 m Speed: 32 kn*10

Sorted: 105 Kg Total catch: 608.50 CATCH/HOUR: 1217.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	825.00	1530	67.79	578
Helicolenus dactylopterus	154.00	4408	12.65	581
Pterothrissus bellioi	48.40	330	3.98	
Synagrops microlepis	44.00	4400	3.62	
Raja caudaspinosa	40.00	20	3.29	
Chlorophthalmus punctatus	22.00	1238	1.81	
Dentex macrophthalmaus	20.90	154	1.72	
Trachurus capensis	9.90	66	0.81	
Mustelus mustelus	8.80	2	0.72	
Raja miraletus	8.00	8	0.66	
Zenopsis conchifer	7.70	44	0.63	
Sepia australis	7.60	100	0.62	
Coelorhynchus polli	4.40	68	0.36	
Lepidopus caudatus	4.40	56	0.36	
Parapenaeus longirostris	4.40	1402	0.36	
Ferulibatrachus rosignoli	2.20	22	0.18	
Merluccius capensis juveniles	2.20	66	0.18	
Hyperoplus ocellii	2.00	2	0.16	
Austrogleus microlepis	1.10	22	0.09	
PORTUNIDAE	0.00			
Merluccius capensis female	0.00			580
Merluccius capensis male	0.00			579
Total	1217.00		99.99	

PROJECT STATION: 223
 DATE: 8/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1719 Long E 1127
 start stop duration
 TIME :09:08:00 09:42:00 34 (min) Purpose code: 3
 LOG :7808.00 7809.80 1.80 Area code : 3
 FDEPTH: 194 198 GearCond.code:
 BDEPTH: 194 198 Validity code:
 Towing dir: 360° Wire out: 800 m Speed: 34 kn*10

Sorted: 56 Kg Total catch: 767.10 CATCH/HOUR: 1353.71

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Chlorophthalmus punctatus	468.00		34.57	
Merluccius capensis	371.65	872	27.45	561
Trachurus capensis	174.35	1406	12.88	564
Squalus megalops	105.53	275	7.80	
Synagrops microlepis	100.94		7.46	
Dentex macrophthalmaus	41.29	245	3.05	565
Pterothrissus bellioi	18.35	184	1.36	
Helicolenus dactylopterus	18.35	305	1.36	
Zenopsis conchifer	13.76	46	1.02	
Chelidonichthys capensis	10.76	92	0.79	
Bombrop heterurus	9.18	92	0.68	
Austrogleus microlepis	4.50	184	0.34	
Parapenaeus longirostris	4.50	1514	0.34	
Sepia sp	3.67	138	0.27	
Coelorhynchus fasciatus	3.21	138	0.24	
Raja sp	2.75	46	0.20	
OPHIDIIDAE	1.84	92	0.14	
Ferulibatrachus rosignoli	0.88	2	0.07	
Merluccius capensis female	0.00			563
Merluccius capensis male	0.00			562
Total	1353.69		100.02	

PROJECT STATION: 228
 DATE: 9/ 3/90 GEAR TYPE: BT No:1 POSITION:Lat S 1751 Long E 1124
 start stop duration
 TIME :11:23:00 11:53:00 30 (min) Purpose code: 3
 LOG :8025.10 8026.60 1.50 Area code : 3
 FDEPTH: 298 304 GearCond.code:
 BDEPTH: 298 304 Validity code:
 Towing dir: 330° Wire out: 900 m Speed: 30 kn*10

Sorted: 41 Kg Total catch: 261.23 CATCH/HOUR: 522.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Merluccius capensis	231.40	1630	44.29	582
Helicolenus dactylopterus	126.00	954	24.12	
Coelorhynchus fasciatus	77.40	3492	14.81	
Galeus polli	39.60	324	7.58	
Todarodes sagittatus	16.20	486	3.10	
Chlorophthalmus punctatus	16.20	486	3.10	
Synagrops microlepis	10.80	576	2.07	
Laemonema laureysi	3.60	36	0.69	
Shrimps, small, non comm.	0.54	108	0.10	
MYCTOPHIDAE	0.54	234	0.10	
GONOSTOMATIDAE	0.18	36	0.03	
Merluccius capensis female	0.00			584
Merluccius capensis male	0.00			583
Total	261.23		100.00	

PROJECT STATION: 229
 DATE: 9/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1817 Long E 1199
 TIME :18:17:00 18:47:00 30 (min) Purpose code: 1
 LOG :8091.40 8092.80 1.40 Area code : 3
 FDEPTH: 140 146 GearCond.code: 3
 BDEPTH: 140 146 Validity code:
 Towing dir: 340° Wire out: 650 m Speed: 28 kn*10
 Sorted: 69 Kg Total catch: 2810.60 CATCH/HOUR: 5621.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	3848.00	104998	68.46	589
Dentex macrocephalus	884.00	9242	15.73	588
Merluccius capensis	686.40	2652	12.21	585
Pterothissus belloci	72.80	728	1.30	
Synagrops microlepis	52.00	4992	0.93	
Lepidopus caudatus	41.60	728	0.74	
Helicolenus dactylopterus	23.92	2392	0.43	
Todaropsis olsonae	10.40	208	0.19	
Parulibrachius rossignoli	2.08	104	0.04	
Merluccius capensis female	0.00			587
Merluccius capensis male	0.00			586
Total	5621.20		100.03	

PROJECT STATION: 236
 DATE:12/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 1911 Long E 1236
 TIME :02:45:00 03:00:00 15 (min) Purpose code: 1
 LOG :8591.30 8591.90 0.60 Area code : 3
 FDEPTH: 10 10 GearCond.code: 3
 BDEPTH: 34 35 Validity code:
 Towing dir: 318° Wire out: 150 m Speed: 27 kn*10
 Sorted: 4 Kg Total catch: 120.20 CATCH/HOUR: 480.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	428.80	19296	89.18	598
Engraulis capensis	51.20	3380	10.65	599
Austrogleus microlepis	0.80	16	0.17	
Total	480.80		100.00	

PROJECT STATION: 237
 DATE:12/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1918 Long E 1234
 TIME :05:05:00 05:35:00 30 (min) Purpose code: 1
 LOG :8610.40 8611.50 1.10 Area code : 3
 FDEPTH: 70 70 GearCond.code: 3
 BDEPTH: 70 70 Validity code:
 Towing dir: 340° Wire out: 250 m Speed: 23 kn*10
 Sorted: 91 Kg Total catch: 91.05 CATCH/HOUR: 182.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	180.00	6210	98.85	600
Sufflogobius bibarbatu	1.40	38	0.77	
Merluccius capensis	0.40	4	0.22	
Austrogleus microlepis	0.30	2	0.16	
Total	182.10		100.00	

PROJECT STATION: 230
 DATE:10/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 1810 Long E 1147
 TIME :09:10:00 09:30:00 20 (min) Purpose code: 1
 LOG :8228.20 8229.10 0.90 Area code : 3
 FDEPTH: 40 40 GearCond.code: 6
 BDEPTH: 65 73 Validity code: 9
 Towing dir: 335° Wire out: 200 m Speed: 30 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
N O C A T C H	0.00			
Total	0.00			

PROJECT STATION: 238
 DATE:12/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1912 Long E 1214
 TIME :11:22:00 11:37:00 15 (min) Purpose code: 1
 LOG :8664.20 8664.80 0.60 Area code : 3
 FDEPTH: 127 127 GearCond.code: 3
 BDEPTH: 127 127 Validity code:
 Towing dir: 335° Wire out: 550 m Speed: 25 kn*10
 Sorted: 41 Kg Total catch: 3460.00 CATCH/HOUR: 13840.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	10752.00	338400	77.69	604
Merluccius capensis	2784.00	13920	20.12	601
Dentex macrocephalus	240.00	2560	1.73	
Galeichthys feliceps	84.00	160	0.46	
Merluccius capensis female	0.00			603
Merluccius capensis male	0.00			602
Total	13840.00		100.00	

PROJECT STATION: 231
 DATE:10/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1844 Long E 1211
 TIME :19:01:00 19:11:00 10 (min) Purpose code: 1
 LOG :8317.10 8317.70 0.60 Area code : 3
 FDEPTH: 60 60 GearCond.code: 3
 BDEPTH: 60 60 Validity code:
 Towing dir: 310° Wire out: 250 m Speed: 35 kn*10
 Sorted: 15 Kg Total catch: 800.00 CATCH/HOUR: 4800.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	4800.00	236310	100.00	590
Total	4800.00		100.00	

PROJECT STATION: 239
 DATE:12/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 1926 Long E 1245
 TIME :23:59:00 00:29:00 30 (min) Purpose code: 1
 LOG :8786.20 8787.70 1.50 Area code : 3
 FDEPTH: 15 15 GearCond.code: 3
 BDEPTH: 37 37 Validity code:
 Towing dir: 330° Wire out: 100 m Speed: 30 kn*10
 Sorted: 5 Kg Total catch: 51.81 CATCH/HOUR: 103.62

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	100.00	3972	96.51	605
Galeichthys feliceps	2.20	6	2.12	
ENGRAULIS CAPENSIS	1.00	108	0.97	606
Sardinops ocellata	0.40	2	0.39	
Etrumeus whiteheadi	0.02	2	0.02	
Total	103.62		100.01	

PROJECT STATION: 232
 DATE:10/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 1850 Long E 1212
 TIME :21:04:00 21:34:00 30 (min) Purpose code: 1
 LOG :8329.80 8331.20 1.40 Area code : 3
 FDEPTH: 12 12 GearCond.code: 3
 BDEPTH: 24 23 Validity code:
 Towing dir: 315° Wire out: 150 m Speed: 28 kn*10
 Sorted: 2 Kg Total catch: 4.80 CATCH/HOUR: 9.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	5.60	260	58.33	591
Engraulis capensis	3.20	260	33.33	592
Etrumeus whiteheadi	0.80	208	8.33	593
Total	9.60		99.99	

PROJECT STATION: 240
 DATE:10/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 1934 Long E 1237
 TIME :02:00:00 02:15:00 15 (min) Purpose code: 1
 LOG :8798.80 8799.60 0.80 Area code : 3
 FDEPTH: 10 10 GearCond.code: 3
 BDEPTH: 95 95 Validity code:
 Towing dir: 330° Wire out: 150 m Speed: 27 kn*10
 Sorted: 4 Kg Total catch: 70.00 CATCH/HOUR: 280.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	280.00	9160	100.00	607
Total	280.00		100.00	

PROJECT STATION: 233
 DATE:10/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 1850 Long E 1212
 TIME :22:59:00 00:19:00 20 (min) Purpose code: 1
 LOG :8349.50 8351.60 1.10 Area code : 3
 FDEPTH: 30 40 GearCond.code: 3
 BDEPTH: 84 86 Validity code:
 Towing dir: 265° Wire out: 150 m Speed: 30 kn*10
 Sorted: 3 Kg Total catch: 50.00 CATCH/HOUR: 150.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	150.00	5850	100.00	594
Total	150.00		100.00	

PROJECT STATION: 241
 DATE:10/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 2001 Long E 1252
 TIME :10:09:00 10:37:00 28 (min) Purpose code: 1
 LOG :8876.20 8877.60 1.40 Area code : 3
 FDEPTH: 80 50 GearCond.code: 3
 BDEPTH: 89 90 Validity code:
 Towing dir: 330° Wire out: 250 m Speed: 30 kn*10
 Sorted: 50 Kg Total catch: 50.00 CATCH/HOUR: 107.14

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	107.14	4967	100.00	608
Total	107.14		100.00	

PROJECT STATION: 234
 DATE:11/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 1850 Long E 1221
 TIME :02:50:00 02:55:00 15 (min) Purpose code: 1
 LOG :8363.80 8364.50 0.70 Area code : 3
 FDEPTH: 10 10 GearCond.code: 3
 BDEPTH: 34 37 Validity code:
 Towing dir: 300° Wire out: 150 m Speed: 22 kn*10
 Sorted: 8 Kg Total catch: 400.00 CATCH/HOUR: 1600.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Engraulis capensis	1390.40	102848	86.90	595
Trachurus capensis	209.60	1104	13.10	596
Total	1600.00		100.00	

PROJECT STATION: 235
 DATE:11/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 1915 Long E 1220
 TIME :10:35:00 10:48:00 13 (min) Purpose code: 1
 LOG :8435.90 8436.10 0.20 Area code : 3
 FDEPTH: 80 80 GearCond.code: 3
 BDEPTH: 127 127 Validity code:
 Towing dir: 340° Wire out: 300 m Speed: 20 kn*10
 Sorted: Kg Total catch: 2500.40 CATCH/HOUR: 11540.31

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	11530.46	402369	99.98	597
Merluccius capensis	1.85	5	0.02	
Total	11540.31		100.00	

PROJECT STATION: 242
 DATE: 13/ 3/90 GEAR TYPE: BT No:1 POSITION: Lat S 1955 Long E 1237
 start stop duration
 TIME :14:20:00 14:50:00 30 (min) Purpose code: 1
 LOG :8911.60 8913.10 1.50 Area code : 3
 FDEPTH: 122 123 GearCond.code:
 BDEPTH: 122 123 Validity code:
 Towing dir: 330° Wire out: 450 m Speed: 30 kn*10
 Sorted: 10 Kg Total catch: 10.45 CATCH/HOUR: 20.90

PROJECT STATION: 248
 DATE: 15/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 2055 Long E 1310
 start stop duration
 TIME :00:37:00 00:52:00 15 (min) Purpose code: 1
 LOG :9210.40 9210.90 0.50 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 90 88 Validity code:
 Towing dir: 70° Wire out: 150 m Speed: 25 kn*10
 Sorted: 450 Kg Total catch: 450.50 CATCH/HOUR: 1802.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Merluccius capensis 20.40 150 97.61 609
 Sufflogobius bibarbatus 0.30 20 1.44
 Trachurus capensis 0.20 4 0.96
 Merluccius capensis female 0.00
 Merluccius capensis male 0.00
 Total 20.90 100.01

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Trachurus capensis 1800.00 63428 99.89 622
 Engraulis capensis 2.00 120 0.11
 Total 1802.00 100.00

PROJECT STATION: 243
 DATE: 13/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 2004 Long E 1226
 start stop duration
 TIME :17:20:00 17:45:00 25 (min) Purpose code: 1
 LOG :8935.60 8936.70 1.10 Area code : 2
 FDEPTH: 100 120 GearCond.code:
 BDEPTH: 203 203 Validity code:
 Towing dir: 330° Wire out: 400 m Speed: 30 kn*10
 Sorted: 150 Kg Total catch: 1503.30 CATCH/HOUR: 3607.92

PROJECT STATION: 249
 DATE: 15/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 2106 Long E 1322
 start stop duration
 TIME :04:05:00 04:15:00 10 (min) Purpose code: 1
 LOG :9237.50 9238.00 0.50 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 94 95 Validity code:
 Towing dir: 330° Wire out: 150 m Speed: 28 kn*10
 Sorted: 90 Kg Total catch: 90.00 CATCH/HOUR: 540.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Trachurus capensis 3600.00 81000 99.78 612
 Merluccius capensis 7.92 29 0.22 613
 Merluccius capensis female 0.00 615
 Merluccius capensis male 0.00 614
 Total 3607.92 100.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Trachurus capensis 540.00 17592 100.00 623
 Total 540.00 100.00

PROJECT STATION: 244
 DATE: 13/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 2007 Long E 1300
 start stop duration
 TIME :23:26:00 00:01:00 25 (min) Purpose code: 1
 LOG :8992.00 8992.90 0.90 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 68 70 Validity code:
 Towing dir: 330° Wire out: 150 m Speed: 20 kn*10
 Sorted: 832 Kg Total catch: 833.50 CATCH/HOUR: 2000.40

PROJECT STATION: 250
 DATE: 16/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 2012 Long E 1304
 start stop duration
 TIME :01:33:00 01:40:00 15 (min) Purpose code: 1
 LOG :9451.20 9451.70 0.50 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 54 55 Validity code:
 Towing dir: 330° Wire out: 150 m Speed: 18 kn*10
 Sorted: 52 Kg Total catch: 52.00 CATCH/HOUR: 208.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Engraulis capensis 1326.00 92820 66.29 618
 Sardiniops ocellata 327.60 5480 16.30 619
 Trachurus capensis 218.40 7664 10.92 616
 Etrumeus whiteheadi 62.40 4932 3.12 617
 Thysites atun 44.40 14 2.22 618
 Myliobatis aquila 17.28 2 0.86
 Gyanura altavela 4.32 2 0.22
 Total 2000.40 100.01

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Engraulis capensis 208.00 12800 100.00 624
 Total 208.00 100.00

PROJECT STATION: 251
 DATE: 16/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 2004 Long E 1256
 start stop duration
 TIME :04:37:00 04:57:00 20 (min) Purpose code: 1
 LOG :9475.60 9476.20 0.60 Area code : 2
 FDEPTH: 70 25 GearCond.code:
 BDEPTH: 82 83 Validity code:
 Towing dir: 330° Wire out: 75 m Speed: 25 kn*10
 Sorted: 171 Kg Total catch: 171.00 CATCH/HOUR: 513.00

PROJECT STATION: 245
 DATE: 14/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 2016 Long E 1305
 start stop duration
 TIME :03:35:00 03:50:00 15 (min) Purpose code: 1
 LOG :9021.00 9021.70 0.70 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 60 62 Validity code:
 Towing dir: 330° Wire out: 150 m Speed: 26 kn*10
 Sorted: Kg Total catch: 0.45 CATCH/HOUR: 1.80

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Engraulis capensis 324.00 29409 63.16 625
 Trachurus capensis 99.00 4800 19.30 626
 Sardiniops ocellata 90.00 2340 17.54 627
 Total 513.00 100.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Engraulis capensis 1.00 72 55.56
 Trachurus capensis 0.40 4 22.22
 Etrumeus whiteheadi 0.40 36 22.22
 Total 1.80 100.00

PROJECT STATION: 252
 DATE: 16/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 1951 Long E 1246
 start stop duration
 TIME :10:40:00 11:10:00 30 (min) Purpose code: 1
 LOG :9529.10 9530.80 1.70 Area code : 3
 FDEPTH: 65 65 GearCond.code:
 BDEPTH: 94 95 Validity code:
 Towing dir: 155° Wire out: 200 m Speed: 32 kn*10
 Sorted: 230 Kg Total catch: 2300.00 CATCH/HOUR: 4600.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Trachurus capensis 4600.00 204444 100.00 628
 Total 4600.00 100.00

PROJECT STATION: 246
 DATE: 14/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 2020 Long E 1307
 start stop duration
 TIME :05:55:00 06:10:00 15 (min) Purpose code: 1
 LOG :9039.00 9039.50 0.90 Area code : 2
 FDEPTH: 15 15 GearCond.code:
 BDEPTH: 63 63 Validity code:
 Towing dir: 350° Wire out: 100 m Speed: 35 kn*10
 Sorted: Kg Total catch: 0.65 CATCH/HOUR: 2.60

PROJECT STATION: 253
 DATE: 16/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 1926 Long E 1239
 start stop duration
 TIME :19:29:00 20:09:00 40 (min) Purpose code: 1
 LOG :9610.40 9612.20 1.80 Area code : 3
 FDEPTH: 8 8 GearCond.code:
 BDEPTH: 70 72 Validity code:
 Towing dir: 305° Wire out: 150 m Speed: 30 kn*10
 Sorted: 3 Kg Total catch: 500.00 CATCH/HOUR: 750.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Trachurus capensis 2.00 80 76.92
 Engraulis capensis 0.60 40 23.08
 Total 2.60 100.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Trachurus capensis 750.00 24734 100.00 629
 Total 750.00 100.00

PROJECT STATION: 247
 DATE: 14/ 3/90 GEAR TYPE: PT No:6 POSITION: Lat S 2044 Long E 1316
 start stop duration
 TIME :20:15:00 20:45:00 30 (min) Purpose code: 1
 LOG :9178.60 9179.90 1.30 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 85 89 Validity code:
 Towing dir: 330° Wire out: 150 m Speed: 26 kn*10
 Sorted: 26 Kg Total catch: 4000.00 CATCH/HOUR: 8000.00

PROJECT STATION: 254
 DATE: 17/ 3/90 GEAR TYPE: PT No:5 POSITION: Lat S 2008 Long E 1302
 start stop duration
 TIME :01:43:00 01:53:00 10 (min) Purpose code: 1
 LOG :9675.80 9676.40 0.60 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 48 48 Validity code:
 Towing dir: 330° Wire out: 200 m Speed: 22 kn*10
 Sorted: 369 Kg Total catch: 369.50 CATCH/HOUR: 2217.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Sardiniops ocellata 6260.00 60974 78.25 620
 Trachurus capensis 1700.00 65166 21.25 621
 Thysites atun 40.00 10 0.50
 Total 8000.00 100.00

SPECIES CATCH/HOUR % OF TOT. C SAMP.NO.
 weight numbers
 Engraulis capensis 2160.00 191520 97.43 630
 Pseudotolithus moorii 57.00 12 2.57
 Total 2217.00 100.00

DATE:17/ 3/90 GEAR TYPE: PT No:6 PROJECT STATION: 255
 start stop duration POSITION:Lat S 2034
 TIME :08:21:00 08:44:00 23 (min) Purpose code: 1 Long E 1214
 LOG :9740.50 9741.20 0.70 Area code : 2
 FDEPTH: 50 50 GearCond.code: 8
 BDEPTH: 83 86 Validity code: 3
 Towing dir: 290° Wire out: 200 m Speed: 20 kn*10
 Sorted: 300 Kg Total catch: 3000.00 CATCH/HOUR: 7826.09

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	7826.09	269022	100.00	631
Total	7826.09		100.00	

DATE:17/ 3/90 GEAR TYPE: PT No:6 PROJECT STATION: 256
 start stop duration POSITION:Lat S 2038
 TIME :11:28:00 11:58:00 30 (min) Purpose code: 1 Long E 1316
 LOG :9762.90 9764.40 1.50 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 50 52 Validity code:
 Towing dir: 165° Wire out: 150 m Speed: 30 kn*10
 Sorted: 90 Kg Total catch: 90.10 CATCH/HOUR: 180.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	147.40	9476	81.80	632
Etrumeus whiteheadi	21.00	1470	11.65	633
Engraulis capensis	11.80	442	6.55	634
Total	180.20		100.00	

DATE:17/ 3/90 GEAR TYPE: PT No:5 PROJECT STATION: 257
 start stop duration POSITION:Lat S 2056
 TIME :22:53:00 23:08:00 15 (min) Purpose code: 1 Long E 1323
 LOG :9888.60 9889.30 0.70 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 55 55 Validity code:
 Towing dir: 330° Wire out: 150 m Speed: 30 kn*10
 Sorted: 5 Kg Total catch: 10.00 CATCH/HOUR: 40.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	36.00	784	90.00	635
Merluccius capensis	1.60	16	4.00	636
Etrumeus whiteheadi	1.60	216	4.00	636
Engraulis capensis	0.80	152	2.00	637
Total	40.00		100.00	

DATE:18/ 3/90 GEAR TYPE: PT No:5 PROJECT STATION: 258
 start stop duration POSITION:Lat S 2127
 TIME :05:00:00 05:10:00 10 (min) Purpose code: 1 Long E 1327
 LOG :9940.60 9949.10 0.50 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 81 81 Validity code:
 Towing dir: 330° Wire out: 200 m Speed: 28 kn*10
 Sorted: 30 Kg Total catch: 30.00 CATCH/HOUR: 180.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP.NO.
	weight	numbers		
Trachurus capensis	180.00	7920	100.00	639
Total	180.00		100.00	

ANNEX III INSTRUMENTS AND FISHING GEAR USED.

Acoustic instruments

Two SIMRAD scientific echo sounders, EK 400/38 kHz and EK 400/120 kHz were used during the survey for estimation of fish density. The EK 400/38 was coupled to a digital integrator QD as well as to an analog integrator QM. The details of the instrument settings used are as follows:

	EK 400/38	EK 400/120
Range	0-100 or 0-250	0-100
Transmitter	High (5000 W Nom)	High (1250 W Nom)
Bandwith	3.3 kHz	3.3 kHz
Pulselength	0.5 ms	1 ms
TVG	20 log R	20 log R
Attenuator	20 dB	0
Rec. gain	7	5
Transducer	Split beam	Ceramic 10 cm

QD settings: Threshold 10 to 24 mv. Gain: -35.8.

QM settings: Gain 20 dB x 10. Threshold 7

An ES 400 color displayer was used for target strength observations.

A calibration experiment using a standard copper sphere performed in Baia dos Tigres on 07/03/90 gave the following results: 30x30 transducer: SL+VR 142.3, instr. constants 1 ms 0.77, 0.5 ms 1.85; gain QD: 1 ms 28.9, 0.5 ms 32.7. ES transducer: SL+VR 135.4, instr. constant 4.09, gain QD 36.1.

Hydrography

Temperature, salinity and oxygen were sampled at standard depths with Nansen bottles. Oxygen was measured with the Winkler method and salinity determined with an inductive salinometer. Surface temperature was recorded at 4 m depth with a thermograph.

Fishing gear

Bottom trawl: High opening shrimp and fish trawl with net headline 31 m (floatline), foot-rope 47 m, gear with 12 cm diameter roller disks, 40 m sweeps, estimated headline high 6m and distance between wings during towing 18-20 m.

Pelagic trawl: Type "Harstad-trawl", width about 30 m, vertical opening 10-15 m and modified "Harstad-trawl" with a vertical opening of 20-25 m.

Cod ends of trawls with fine meshed inner lining.

Coelorrinchus polli	55(1.00)	, 49(0.38)	, 50(0.16)	, 174(4.80)	, 184(9.00)	, 185(10.80)
	186(0.32)	, 193(3.60)	, 195(8.40)	, 206(30.00)	, 227(4.40)	
Malaccocephalus laevis	11(14.50)	, 12(10.96)	, 23(1.50)	, 28(1.00)	, 64(12.00)	, 65(6.00)
	66(12.00)					
Nezumia sp	47(5.60)	, 49(31.25)	, 50(7.20)	, 54(3.60)	, 57(5.60)	, 65(6.00)
	66(3.00)	, 75(3.60)	, 76(13.07)	, 78(6.00)	, 88(1.28)	, 89(19.20)
	91(24.00)	, 92(6.30)	, 104(21.60)	, 105(10.93)	, 106(8.00)	, 107(1.40)
	123(28.29)	, 124(1.44)	, 139(1.80)	, 139(0.60)	, 160(2.80)	, 162(30.00)
	176(5.60)	, 193(1.80)	, 194(29.14)	, 195(5.60)	, 196(3.40)	, 203(14.00)
	204(50.00)	, 205(65.00)	, 206(20.00)	, 216(54.40)	, 218(30.00)	
Trachyrinus scabrus	76(9.07)	, 89(19.20)	, 91(37.44)	, 105(12.80)	, 106(72.80)	, 107(0.40)
	123(42.94)	, 160(86.10)	, 162(132.50)	, 175(163.10)	, 176(12.60)	, 184(1.80)
	185(73.20)	, 194(111.43)	, 196(70.00)	, 197(112.50)	, 204(92.00)	, 205(69.00)
	216(48.00)					

MERLUCCIIDAE

Merluccius capensis	1(0.00)	, 2(904.40)	, 3(0.00)	, 4(8035.00)	, 5(1314.55)	, 6(747.60)
	7(183.00)	, 8(142.80)	, 9(51.80)	, 11(98.00)	, 13(65.80)	, 14(206.20)
	16(236.00)	, 17(4.60)	, 18(2214.00)	, 19(76.80)	, 20(162.40)	, 21(87.80)
	22(135.00)	, 23(26.10)	, 24(109.40)	, 25(30.00)	, 27(170.80)	, 29(76.91)
	30(39.60)	, 31(46.80)	, 32(64.00)	, 35(831.60)	, 37(1736.00)	, 38(385.20)
	40(189.00)	, 43(2.40)	, 44(70.40)	, 52(134.00)	, 56(128.40)	, 58(529.20)
	62(726.40)	, 63(593.00)	, 67(241.80)	, 68(492.80)	, 69(1361.40)	, 73(264.00)
	74(29.40)	, 75(61.40)	, 79(315.80)	, 80(142.00)	, 81(997.20)	, 83(1.36)
	84(1026.48)	, 85(6500.00)	, 86(217.40)	, 87(287.70)	, 88(85.40)	, 93(164.00)
	94(152.80)	, 95(934.80)	, 96(1488.00)	, 100(1127.10)	, 53(114.50)	, 101(252.00)
	102(53.60)	, 103(115.20)	, 45(27.80)	, 107(31.40)	, 108(52.80)	, 109(1133.40)
	110(3110.40)	, 111(691.20)	, 116(160.30)	, 117(510.40)	, 118(778.60)	, 119(418.60)
	120(67.20)	, 121(2.20)	, 124(240.60)	, 125(103.20)	, 126(542.40)	, 127(1846.80)
	128(1393.20)	, 134(88.40)	, 135(2613.00)	, 136(866.00)	, 140(373.70)	, 141(356.60)
	143(142.35)	, 144(57.60)	, 145(115.80)	, 147(1740.80)	, 154(0.40)	, 156(34.80)
	157(151.20)	, 158(153.00)	, 159(62.00)	, 163(6645.20)	, 171(6.80)	, 172(503.80)
	173(338.20)	, 174(9.60)	, 175(52.10)	, 176(46.50)	, 182(332.80)	, 183(8.60)
	184(37.90)	, 186(25.60)	, 186(0.24)	, 187(48.88)	, 188(1797.60)	, 191(2076.00)
	192(1026.00)	, 195(58.50)	, 198(118.00)	, 200(383.60)	, 201(2032.00)	, 202(1029.60)
	206(1.00)	, 207(9.00)	, 208(400.40)	, 209(739.20)	, 213(7548.40)	, 215(420.00)
	216(15.00)	, 217(4500.00)	, 218(45.40)	, 222(537.60)	, 223(371.65)	, 224(386.00)
	226(600.00)	, 227(825.00)	, 228(231.40)	, 229(686.40)	, 235(1.85)	, 237(0.40)
	233(2784.00)	, 242(20.40)	, 243(7.92)	, 257(1.60)		
Merluccius capensis male	5(0.00)	, 7(0.00)	, 8(0.00)	, 9(0.00)	, 11(0.00)	, 13(0.00)
	14(0.00)	, 16(0.00)	, 19(0.00)	, 20(0.00)	, 21(0.00)	, 22(0.00)
	23(0.00)	, 24(0.00)	, 25(0.00)	, 26(22.20)	, 26(0.00)	, 27(0.00)
	29(0.00)	, 30(0.00)	, 31(0.00)	, 32(0.00)	, 36(0.00)	, 37(0.00)
	40(0.00)	, 52(0.00)	, 56(0.00)	, 58(0.00)	, 62(0.00)	, 63(0.00)
	67(0.00)	, 68(0.00)	, 69(0.00)	, 73(0.00)	, 74(0.00)	, 75(0.00)
	79(0.00)	, 80(0.00)	, 81(0.00)	, 85(0.00)	, 86(0.00)	, 87(0.00)
	88(0.00)	, 93(0.00)	, 94(0.00)	, 95(0.00)	, 96(0.00)	, 100(0.00)
	101(0.00)	, 102(0.00)	, 103(0.00)	, 45(0.00)	, 107(0.00)	, 108(0.00)
	109(0.00)	, 110(0.00)	, 111(0.00)	, 117(0.00)	, 118(0.00)	, 119(0.00)
	120(0.00)	, 124(0.00)	, 125(0.00)	, 126(0.00)	, 127(0.00)	, 134(0.00)
	135(0.00)	, 136(0.00)	, 140(0.00)	, 141(0.00)	, 143(0.00)	, 144(0.00)
	145(0.00)	, 147(0.00)	, 156(0.00)	, 157(0.00)	, 158(0.00)	, 159(0.00)
	163(0.00)	, 171(0.00)	, 172(0.00)	, 173(0.00)	, 174(0.00)	, 176(0.00)
	182(0.00)	, 183(0.00)	, 184(0.00)	, 186(0.00)	, 187(0.00)	, 188(0.00)
	192(0.00)	, 195(0.00)	, 198(0.00)	, 200(0.00)	, 201(0.00)	, 202(0.00)
	206(0.00)	, 207(0.00)	, 208(0.00)	, 213(0.00)	, 215(0.00)	, 217(0.00)
	218(0.00)	, 222(0.00)	, 223(0.00)	, 224(0.00)	, 226(0.00)	, 227(0.00)
	228(0.00)	, 229(0.00)	, 236(0.00)	, 242(0.00)	, 243(0.00)	
Merluccius capensis female	5(0.00)	, 7(0.00)	, 8(0.00)	, 9(0.00)	, 11(0.00)	, 13(0.00)
	14(0.00)	, 16(0.00)	, 19(0.00)	, 20(0.00)	, 21(0.00)	, 22(0.00)
	23(0.00)	, 24(0.00)	, 25(0.00)	, 26(0.00)	, 27(0.00)	, 29(0.00)
	30(0.00)	, 31(0.00)	, 32(0.00)	, 36(0.00)	, 40(0.00)	, 52(0.00)
	56(0.00)	, 58(0.00)	, 62(0.00)	, 63(0.00)	, 67(0.00)	, 68(0.00)
	69(0.00)	, 73(0.00)	, 74(0.00)	, 75(0.00)	, 79(0.00)	, 80(0.00)
	81(0.00)	, 85(0.00)	, 86(0.00)	, 87(0.00)	, 88(0.00)	, 93(0.00)
	94(0.00)	, 95(0.00)	, 96(0.00)	, 100(0.00)	, 101(0.00)	, 102(0.00)
	103(0.00)	, 45(0.00)	, 107(0.00)	, 108(0.00)	, 109(0.00)	, 110(0.00)
	111(0.00)	, 117(0.00)	, 118(0.00)	, 119(0.00)	, 120(0.00)	, 124(0.00)
	125(0.00)	, 126(0.00)	, 127(0.00)	, 134(0.00)	, 135(0.00)	, 136(0.00)
	140(0.00)	, 141(0.00)	, 143(0.00)	, 144(0.00)	, 145(0.00)	, 147(0.00)
	156(0.00)	, 157(0.00)	, 158(0.00)	, 159(0.00)	, 163(0.00)	, 171(0.00)
	172(0.00)	, 173(0.00)	, 174(0.00)	, 175(0.00)	, 176(0.00)	, 182(0.00)
	183(0.00)	, 184(0.00)	, 186(0.00)	, 187(0.00)	, 188(0.00)	, 192(0.00)
	195(0.00)	, 198(0.00)	, 200(0.00)	, 201(0.00)	, 202(0.00)	, 207(0.00)
	208(0.00)	, 209(0.00)	, 213(0.00)	, 215(0.00)	, 216(0.00)	, 217(0.00)
	218(0.00)	, 222(0.00)	, 223(0.00)	, 224(0.00)	, 226(0.00)	, 227(0.00)
	228(0.00)	, 229(0.00)	, 236(0.00)	, 242(0.00)	, 243(0.00)	
Merluccius paradoxus	12(174.52)	, 28(134.60)	, 34(99.00)	, 35(1017.79)	, 46(131.10)	, 47(375.90)
	49(40.50)	, 48(39.60)	, 50(124.60)	, 51(121.20)	, 54(99.40)	, 57(15.07)
	64(58.00)	, 65(46.00)	, 66(19.60)	, 75(7.00)	, 76(34.93)	, 78(46.00)
	89(59.60)	, 91(14.64)	, 92(180.60)	, 10(14.20)	, 55(30.00)	, 104(14.80)
	105(11.07)	, 106(65.87)	, 123(8.57)	, 126(62.00)	, 139(131.20)	, 160(25.40)
	162(96.30)	, 185(12.10)	, 194(14.40)	, 196(78.70)	, 197(12.80)	, 203(110.70)
	204(136.00)	, 205(19.40)	, 206(11.00)			
Merluccius paradoxus male	12(0.00)	, 28(0.00)	, 34(0.00)	, 46(0.00)	, 47(0.00)	, 49(0.00)
	48(0.00)	, 50(0.00)	, 51(0.00)	, 54(0.00)	, 64(0.00)	, 66(0.00)
	89(0.00)	, 91(0.00)	, 92(0.00)	, 10(0.00)	, 139(0.00)	, 160(0.00)
	185(0.00)	, 203(0.00)	, 204(0.00)			
Merluccius paradoxus female	12(0.00)	, 28(0.00)	, 34(0.00)	, 46(0.00)	, 47(0.00)	, 49(0.00)
	48(0.00)	, 50(0.00)	, 51(0.00)	, 54(0.00)	, 57(0.00)	, 64(0.00)
	65(0.00)	, 66(0.00)	, 76(0.00)	, 78(0.00)	, 89(0.00)	, 91(0.00)
	92(0.00)	, 10(0.00)	, 55(0.00)	, 104(0.00)	, 105(0.00)	, 106(0.00)
	123(0.00)	, 138(0.00)	, 139(0.00)	, 160(0.00)	, 162(0.00)	, 185(0.00)
	194(0.00)	, 196(0.00)	, 197(0.00)	, 203(0.00)	, 204(0.00)	, 205(0.00)
	206(0.00)					
Merluccius capensis juveniles	21(6.40)	, 29(103.09)	, 227(2.20)			

MORIDAE																	
Laemonema laureysi	174(	0.04)	,	215(	0.80)	,	218(	2.40)	,	222(	28.00)	,	228(	3.60)			
Physiculus capensis	10(	0.50)	,	48(	0.80)												
Tripterophycis gilchristi	23(	0.10)															
MYCTOPHIDAE																	
	5(	13.64)	,	8(	22.50)	,	17(	80.00)	,	32(	2.60)	,	34(	4.32)	,	35(	31.96)
	38(	39.60)	,	40(	7.70)	,	44(	0.00)	,	45(	0.00)	,	46(	10.00)	,	47(	3.22)
	48(	1.60)	,	50(	6.00)	,	51(	3.00)	,	52(	3.20)	,	54(	1.60)	,	55(	0.60)
	57(	1.33)	,	58(	4.76)	,	63(	79.20)	,	64(	1.20)	,	65(	0.60)	,	67(	29.76)
	68(	21.46)	,	74(	36.80)	,	75(	3.04)	,	76(	0.67)	,	86(	11.20)	,	88(	0.08)
	90(	240.00)	,	93(	1.60)	,	105(	0.53)	,	107(	1.56)	,	120(	11.00)	,	123(	1.03)
	124(	28.80)	,	138(	7.20)	,	139(	2.40)	,	159(	2.40)	,	173(	1.20)	,	174(	1.40)
	176(	8.80)	,	177(	20.00)	,	182(	0.26)	,	183(	0.60)	,	192(	0.80)	,	193(	23.40)
	195(	3.50)	,	196(	0.40)	,	205(	0.60)	,	207(	4.00)	,	208(	176.00)	,	215(	3.00)
Lampanyctodes hectoris	217(	46.20)	,	218(	6.00)	,	222(	6.44)	,	228(	0.54)						
	7(	55.00)	,	10(	0.05)	,	41(	40000.00)	,	80(	2.40)	,	87(	12.00)			
MYXINIDAE																	
Myxine capensis	28(	0.00)	,	30(	5.40)												
NEMICHTHYIDAE																	
Nemichthys scolopacea	91(	0.12)	,	184(	0.09)	,	194(	0.17)	,	219(	0.32)						
NOCAA00																	
N O C A T C H																	
	70(	0.00)	,	71(	0.00)	,	72(	0.00)	,	77(	0.00)	,	99(	0.00)	,	115(	0.00)
	149(	0.00)	,	152(	0.00)	,	39(	0.00)	,	167(	0.00)	,	230(	0.00)			
NOMEIDAE																	
Cubiceps caeruleus	76(	0.33)															
NOTACANTHIDAE																	
Notacanthus sexspinis	10(	0.10)	,	34(	0.20)	,	48(	0.40)	,	54(	2.60)	,	55(	0.10)	,	57(	0.27)
	75(	0.80)	,	89(	0.80)	,	162(	0.50)	,	176(	0.08)	,	194(	0.51)	,	205(	1.50)
OPHIDIIDAE																	
Gnyphterus capensis	223(	1.84)															
	5(	10.91)	,	6(	2.60)	,	7(	0.40)	,	11(	7.10)	,	12(	5.87)	,	13(	1.40)
	16(	8.00)	,	23(	30.40)	,	32(	0.08)	,	34(	11.00)	,	35(	6.16)	,	38(	51.90)
	40(	2.40)	,	46(	45.20)	,	55(	12.20)									
Lamprogrammus exutus	185(	0.72)	,	194(	1.54)	,	204(	3.60)	,	205(	2.00)						
Selachophidium guentheri	49(	2.90)	,	50(	1.60)	,	57(	0.91)	,	76(	3.33)	,	91(	0.48)	,	92(	7.00)
	93(	16.00)	,	104(	4.00)	,	105(	2.67)	,	107(	0.10)	,	138(	0.12)	,	184(	0.36)
	205(	3.00)															
PARALEPIDIDAE																	
Lestidiops sp	207(	0.24)															
PERCOPHIDIDAE																	
Bembrops heterurus	223(	9.18)															
PSYCHROLUTIDAE																	
Ebinania costaeacanaria	49(	0.08)	,	50(	0.80)	,	66(	2.20)	,	104(	3.00)	,	105(	0.27)	,	123(	0.10)
	160(	0.28)	,	197(	0.20)	,	205(	3.50)									
Psychrolutes macrocephalus	194(	2.40)	,	206(	1.80)	,	216(	0.96)									
R A Y S																	
Dasyatis violacea	173(	7.00)															
Gymnura altavela	244(	4.32)															
Myliobatis aquila	244(	17.23)															
Raja sp	175(	3.50)	,	217(	5.20)	,	221(	2.40)	,	222(	2.80)	,	223(	2.75)			
Raja miraletus	227(	8.00)															
Raja caudaspinosa	12(	2.48)	,	24(	9.40)	,	57(	9.47)	,	54(	11.60)	,	65(	13.00)	,	89(	2.40)
	91(	3.12)	,	104(	4.20)	,	106(	5.40)	,	107(	0.20)	,	138(	4.80)	,	160(	6.50)
	162(	2.40)	,	185(	0.60)	,	205(	7.00)	,	206(	2.60)	,	207(	0.80)	,	213(	20.40)
	227(	40.00)															
Raja clavata	16(	5.20)	,	19(	18.00)	,	38(	11.40)									
Raja stenorhynchus	89(	1.60)															
Torpedo nobiliana	124(	1.04)															
REGALECIDAE																	
Regalecus glesne	65(	0.00)															
SCIAENIDAE																	
Atractoscion aequidens	224(	5.20)	,	226(	53.20)												
Pseudolithus moorii	254(	57.00)															
SCOMBERESOCIDAE																	
Scomberesox saurus	76(	1.27)															
SCOMBRIDAE																	
Scomber japonicus	6(	6.00)	,	7(	3.60)	,	16(	11.80)	,	17(	4.00)	,	22(	12.20)	,	29(	5.09)
SCORPAENIDAE																	
Helicolenus dactylopterus	6(	2.80)	,	7(	5.00)	,	8(	3.50)	,	9(	46.20)	,	10(	0.50)	,	11(	4.50)
	12(	0.39)	,	13(	28.00)	,	16(	4.00)	,	19(	0.90)	,	20(	8.40)	,	21(	0.50)
	23(	49.00)	,	24(	12.00)	,	25(	0.02)	,	28(	3.20)	,	29(	2.55)	,	34(	9.50)
	46(	15.00)	,	47(	0.14)	,	50(	3.20)	,	51(	16.80)	,	54(	22.80)	,	55(	36.40)
	56(	0.66)	,	57(	5.33)	,	64(	9.60)	,	65(	8.00)	,	66(	7.20)	,	75(	4.00)
	76(	10.13)	,	78(	6.00)	,	79(	2.00)	,	85(	5.60)	,	87(	5.00)	,	88(	13.60)
	89(	20.40)	,	91(	7.20)	,	92(	29.26)	,	93(	2.40)	,	94(	2.40)	,	102(	1.00)
	103(	6.40)	,	104(	12.80)	,	105(	6.67)	,	106(	12.00)	,	107(	1.60)	,	120(	0.40)
	123(	21.09)	,	124(	7.20)	,	125(	1.20)	,	136(	9.00)	,	138(	90.90)	,	139(	16.20)
	140(	10.80)	,	141(	5.32)	,	143(	6.30)	,	159(	9.60)	,	160(	26.60)	,	162(	18.00)
	173(	3.60)	,	174(	2.80)	,	175(	21.00)	,	183(	8.40)	,	184(	66.60)	,	185(	3.40)
	193(	95.40)	,	195(	37.10)	,	196(	80.00)	,	197(	47.50)	,	203(	30.00)	,	204(	6.00)
	206(	80.00)	,	207(	12.00)	,	215(	12.00)	,	216(	10.40)	,	217(	231.00)	,	218(	20.40)
	222(	44.80)	,	223(	18.35)	,	227(	154.00)	,	228(	126.00)	,	229(	23.92)			

SERRANIDAE										
Polyprion americanus	27(	4.30)								
S H A R K S										
Prionace glauca	111(	4.20)								
Callorhynchus capensis	5(	63.82)	, 13(	4.40)	, 14(	11.00)	, 18(	108.00)	, 19(	18.20)
	32(	3.40)	, 36(	3.00)	, 83(	2.80)	, 109(	18.60)	, 213(	12.40)
			, 220(	31.00)	, 220(	9.60)				
Neoharriotta pinnata	64(	1.20)	, 66(	6.00)	, 92(	8.20)	, 138(	14.20)	, 175(	1.50)
	194(	14.40)	, 197(	2.10)	, 203(	2.10)	, 206(	2.00)		
Echinorhinus brucus	125(	9.60)								
Hexanchus griseus	107(	5.33)	, 208(	10.40)						
Isurus oxyrinchus	161(	9.38)								
Oxynotus centrina	226(	8.20)								
Scylliorhinus capensis	22(	24.00)	, 24(	0.70)	, 27(	2.40)				
Galeus polli	54(	0.60)	, 55(	0.60)	, 64(	3.60)	, 65(	1.20)	, 66(	13.20)
	78(	2.00)	, 87(	1.00)	, 88(	4.80)	, 93(	4.00)	, 94(	1.60)
	103(	4.00)	, 104(	9.72)	, 105(	1.07)	, 107(	3.20)	, 123(	2.83)
	125(	1.20)	, 138(	11.40)	, 139(	15.60)	, 141(	2.40)	, 143(	1.40)
	160(	12.60)	, 173(	4.80)	, 174(	18.00)	, 175(	3.50)	, 176(	1.60)
	184(	7.20)	, 186(	1.92)	, 193(	21.60)	, 194(	3.09)	, 195(	7.00)
	197(	2.00)	, 203(	42.00)	, 204(	10.00)	, 205(	15.00)	, 206(	24.00)
	216(	12.00)	, 217(	7.80)	, 218(	6.00)	, 222(	33.60)	, 228(	39.60)
Holohalaelurus regani	8(	0.80)	, 9(	0.80)	, 11(	2.50)	, 13(	1.80)	, 14(	1.80)
	20(	1.60)	, 24(	4.60)	, 28(	2.20)				
Apristurus sp.	34(	0.30)								
Centrophorus granulosus	78(	7.00)	, 138(	409.00)	, 174(	7.00)	, 184(	3.00)	, 193(	10.60)
	203(	7.80)	, 204(	53.00)						
Centrophorus squamosus	78(	51.20)	, 91(	16.20)	, 89(	35.60)	, 104(	3.60)	, 162(	22.50)
	184(	5.00)	, 194(	19.37)	, 204(	3.90)	, 205(	65.50)		
Deania calcea	48(	82.20)	, 49(	8.00)	, 57(	3.07)	, 76(	4.13)	, 89(	13.00)
	92(	16.20)	, 104(	2.40)	, 105(	8.80)	, 123(	6.43)	, 138(	15.60)
	162(	32.30)	, 176(	6.70)	, 185(	37.20)				
Etmopterus lucifer	76(	0.40)								
Etmopterus spinax	54(	1.20)	, 57(	0.40)	, 76(	0.80)	, 78(	1.00)	, 89(	0.80)
	104(	1.20)	, 105(	1.07)						
Etmopterus brachyurus	162(	0.40)								
Centroscyminus crepidater	49(	1.46)	, 76(	4.27)	, 91(	3.60)	, 162(	3.50)	, 216(	2.40)
			, 219(	1.60)						
Squalus megalops	9(	1.60)	, 14(	25.80)	, 16(	3.00)	, 19(	28.70)	, 20(	1.20)
	34(	1.90)	, 146(	0.50)	, 198(	8.00)	, 209(	11.60)	, 223(	105.53)
Mustelus mustelus	220(	7.80)	, 226(	168.20)	, 227(	8.80)				
Mustelus palumbes	19(	10.80)	, 20(	9.40)	, 36(	4.00)	, 201(	13.20)	, 226(	2.00)
Galeorhinus galeus	19(	74.60)	, 20(	83.40)	, 31(	32.20)	, 32(	30.60)	, 33(	81.40)
S H R I M P S										
Shrimps, small, non comm.	48(	0.40)	, 50(	0.00)	, 78(	2.40)	, 158(	5.00)	, 174(	0.08)
			, 176(	1.60)						
	23(	1.00)	, 57(	0.40)	, 76(	0.27)	, 91(	4.80)	, 175(	1.19)
	185(	0.12)	, 186(	5.20)	, 193(	0.18)	, 194(	1.03)	, 196(	1.20)
	203(	0.40)	, 204(	1.20)	, 206(	0.30)	, 216(	4.60)	, 218(	14.40)
			, 228(	0.54)						
Aristeus varidens	104(	0.80)	, 105(	0.40)	, 123(	0.51)	, 160(	4.90)	, 162(	8.20)
	184(	0.90)	, 185(	1.92)	, 194(	4.80)	, 216(	1.20)	, 218(	11.40)
Heterocarpus grimaldii	205(	0.20)								
Pleustionika sp.	47(	0.70)	, 104(	1.60)	, 105(	0.80)	, 123(	1.03)	, 160(	7.00)
Pandalina sp.	139(	1.20)								
Parapenaeus longirostris	56(	0.00)	, 176(	0.08)	, 223(	4.59)	, 227(	4.40)		
Pasiphaea sp.	162(	0.00)								
Solenocera africana	16(	0.50)	, 125(	0.60)	, 136(	13.50)	, 140(	10.80)	, 141(	11.40)
	159(	6.00)	, 172(	3.30)	, 173(	0.60)	, 174(	0.68)	, 182(	132.60)
	186(	31.20)	, 187(	1.40)	, 192(	4.00)	, 193(	0.36)	, 198(	7.00)
	207(	0.08)	, 215(	3.00)						
SOLEIDAE										
Austroglossus microlepis	5(	1.64)	, 18(	0.80)	, 31(	0.60)	, 38(	0.90)	, 56(	0.60)
	101(	7.00)	, 110(	33.60)	, 111(	10.80)	, 118(	5.80)	, 126(	1.80)
	173(	0.60)	, 182(	2.20)	, 2(	0.00)	, 186(	1.60)	, 202(	2.00)
	223(	4.59)	, 224(	14.40)	, 227(	1.10)	, 236(	0.80)	, 237(	0.30)
SPARIDAE										
Dentex macrophthalmus	145(	0.50)	, 172(	2.00)	, 182(	0.60)	, 186(	0.46)	, 188(	252.00)
	192(	20.40)	, 198(	25.00)	, 201(	384.00)	, 208(	145.20)	, 209(	44.80)
	223(	41.29)	, 224(	902.40)	, 226(	3288.00)	, 227(	20.90)	, 229(	884.00)
			, 238(	240.00)						
Spondyllosoma cantharus	226(	1.20)								
C E P H A L O P O D A										
Loligo vulgaris	205(	2.00)								
	6(	0.80)	, 8(	0.20)	, 13(	14.00)	, 19(	3.50)	, 20(	0.12)
	22(	24.00)	, 24(	23.20)	, 31(	4.20)				
Octopus vulgaris	6(	2.00)	, 7(	5.60)	, 16(	11.00)	, 35(	7.11)		
Todarodes sagittatus	6(	1.20)	, 7(	6.00)	, 8(	7.10)	, 9(	3.00)	, 11(	2.50)
	14(	0.60)	, 21(	3.20)	, 24(	0.80)	, 25(	16.00)	, 26(	27.00)
	35(	9.95)	, 36(	19.40)	, 37(	24.80)	, 38(	86.25)	, 47(	9.40)
	49(	15.00)	, 50(	16.80)	, 51(	21.60)	, 54(	2.00)	, 55(	20.80)
	57(	54.67)	, 63(	78.00)	, 64(	36.00)	, 65(	30.00)	, 66(	31.00)
	68(	20.90)	, 74(	5.00)	, 75(	4.00)	, 76(	44.53)	, 78(	42.40)
	80(	5.76)	, 85(	22.40)	, 87(	13.30)	, 88(	3.06)	, 89(	46.40)
	92(	58.38)	, 94(	4.00)	, 101(	4.20)	, 102(	4.00)	, 103(	10.40)
	105(	6.67)	, 106(	32.00)	, 107(	29.00)	, 119(	4.80)	, 120(	4.20)
	124(	24.00)	, 125(	2.40)	, 138(	44.40)	, 139(	46.80)	, 143(	58.05)
	160(	60.20)	, 173(	28.80)	, 174(	10.60)	, 175(	8.40)	, 176(	4.80)
	183(	3.40)	, 184(	27.90)	, 192(	24.00)	, 193(	10.80)	, 194(	2.91)
	198(	10.00)	, 203(	14.00)	, 204(	34.00)	, 205(	15.00)	, 206(	12.00)
	215(	8.40)	, 216(	10.40)	, 217(	41.60)	, 218(	12.00)	, 222(	8.40)
			, 228(	16.20)						

Todaropsis eblanae	11(0.50) , 12(0.08) , 13(1.40) , 14(0.68) , 16(0.10) , 19(0.80) , 20(0.18) , 21(0.80) , 22(0.32) , 24(1.20) , 25(3.20) , 26(0.36) , 27(0.80) , 73(6.40) , 184(2.16) , 229(10.40)
Sepia sp	5(0.00) , 223(3.67)
Sepia australis	6(8.40) , 7(15.00) , 8(40.00) , 9(31.20) , 13(11.20) , 14(18.00) , 16(42.00) , 17(19.20) , 19(0.36) , 20(6.00) , 21(9.50) , 22(2.00) , 24(3.20) , 26(0.18) , 32(0.40) , 33(0.42) , 34(1.08) , 227(7.60) ,
Sepiella sp	2(0.00)
Rossia sp	11(1.00) , 12(1.57)
Thysanoteuthis rhombus	219(3.20)
STROMATEIDAE	
Centrolophus niger	12(0.78) , 107(6.00) , 143(20.25) , 192(1.40) , 206(10.00) , 208(24.20) , 217(41.60)
Hyperoglyphe moselii	198(5.00) , 227(2.00)
Schedophilus huttoni	49(2.60) , 63(30.80) , 65(5.40) , 66(9.80) , 75(5.00) , 78(4.20) , 79(103.00) , 87(8.60) , 90(15.20) , 91(2.64) , 92(2.38) , 93(4.80) , 103(420.80) , 107(2.90) , 124(12.40) , 138(10.70) , 143(59.25) , 159(7.00) , 173(119.00) , 181(0.60) , 210(0.10)
TETRAGONURIDAE	
Tetragonurus cuvieri	196(15.00) , 204(8.00) , 206(5.00) , 218(2.40)
TRACHIPTERIDAE	
Trachipterus trachipterus	63(0.00) , 86(6.60) , 87(10.40) , 92(8.60) , 107(2.80) , 138(8.80) , 143(4.88) , 161(0.56)
Zu elongatus	173(13.40) , 183(3.80)
TRIGLIDAE	
Chelidonichthys capensis	2(41.80) , 5(43.64) , 6(39.20) , 7(28.00) , 9(13.80) , 13(2.00) , 14(83.40) , 16(6.00) , 18(319.60) , 19(84.80) , 20(9.60) , 21(14.40) , 24(9.60) , 31(0.80) , 32(3.20) , 36(4.40) , 37(10.40) , 61(288.00) , 135(12.00) , 150(3.60) , 163(2.40) , 179(0.51) , 188(47.04) , 191(66.00) , 223(10.76) , 224(48.00) , 226(168.00)
Chelidonichthys queketti	14(6.60) , 24(4.80) , 27(2.60)
TRACHICHTHYIDAE	
Hoplostethus mediterraneus	12(0.08)
Hoplostethus melanopus	47(1.40) , 48(2.80) , 49(3.75) , 50(32.80) , 51(0.60) , 54(81.60) , 55(2.20) , 57(16.27) , 65(3.00) , 66(3.00) , 76(0.93) , 89(99.20) , 91(20.16) , 92(14.00) , 104(14.00) , 105(12.80) , 106(11.20) , 123(5.91) , 139(1.80) , 160(142.10) , 162(16.00) , 174(4.00) , 175(72.80) , 176(62.40) , 183(0.36) , 184(88.20) , 185(4.80) , 193(3.60) , 194(228.00) , 195(80.50) , 196(92.00) , 203(72.00) , 204(20.00) , 205(2.00) , 206(15.00) , 207(4.00) , 216(26.40) , 218(14.40) , 219(64.00)
TRICHIURIDAE	
Lepidopus caudatus	2(0.00) , 5(5.45) , 7(1.00) , 9(0.60) , 11(0.50) , 12(3.26) , 13(2.00) , 17(1.60) , 20(0.06) , 21(320.00) , 22(3.20) , 24(0.20) , 25(129.60) , 26(126.00) , 27(130.00) , 34(0.80) , 35(6.60) , 87(1.00) , 107(0.20) , 120(0.80) , 138(0.12) , 145(1.00) , 173(0.12) , 184(0.81) , 185(0.60) , 191(2.40) , 195(0.50) , 216(2.40) , 219(0.48) , 227(4.40) , 229(41.60)
ZEIDAE	
Allocyttus verrucosus	162(0.70)
Zeus faber	9(0.40) , 13(29.40) , 14(0.60) , 19(0.90) , 20(3.60) , 22(104.00) , 24(6.00) , 25(0.40) , 27(1430.00) , 28(3.00)
Zenopsis conchifer	193(7.60) , 223(13.76) , 227(7.70)

