

## SURVEYS OF THE FISH RESOURCES OF MOZAMBIQUE

Preliminary Cruise Report No II

9 August - 1 September 1990

IIP, Maputo IMR, Bergen

The "DR. FRIDTJOF NANSEN" research programme is sponsored by the Norwegian Agency for Development Assistance NORAD, the Food and Agriculture Organization of the United Nations FAO, and the United Nations Development Programme UNDP. The programme in Mozambique is being conducted and planned under agreements between NORAD, Mozambique authorities, IIP Maputo and the Institute of Marine Research, Bergen, Norway.

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

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Survey 1 4 weeks, 20 April to 14 May

" 2 4 " primo August-primo September

" 3 6 " primo November-mid December
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This preliminary cruise report describes the work and some of the results of the second survey.

## CHAPTER 1 INTRODUCTION

### 1.1 OBJECTIVES

The objectives of the "DR. FRIDTJOF NANSEN" programme in Mozambique in 1990 were discussed in a general way at the annual MOZ-038 project meeting in Maputo in October 1989. At a meeting in Maputo on 9 August before the start of the cruise the following objectives were defined:

- (i) Conduct an acoustic survey of the Sofala Bank area from Angoche at 16°10' to Bazaruto at 21°30' with a transect distance of 15 nm and reduce to a denser grid when fish aggregations are detected. Trawling for identification of acoustic targets when neccessary.
- (ii) Conduct a trawl survey on the shrimp resources on the Sofala Bank. Positions for the hauls are given by IIP using a random sample programme. 53 stations are allocated.
- (iii) Run a detailed hydrographical programme on the Sofala Bank in order to study the freshwater flux on the Bank using CTD sonde equipment of IIP. In addition, as time would permit, cover the standard hydrographical sections extending up to 180 nm offshore.

## 1.2 PARTICIPATION

The scientific staff From IIP, Maputo was:

Rui de Paula e Silva, Elsa Dionisio, Boavida Matavela, Daniel Fernando, Feliciano Manjate.

The scientific staff from NORAD Project Mo 038 was:

Jan Erick Steen

The scientific staff from IMR, Bergen:

T. Strømme, B. Ellertsen, Martin Dahl, Reidar Johannessen.

#### 1.3 NARRATIVE

The course tracks with fishing stations and the main hydrographical profiles are shown in Figure 1.

After departure from Maputo on 9 August the vessel steamed 2 days to commence the survey at the northern part of the Sofala Bank. On way, a rig with current meter was anchored southeast of Quelimane at 15 m depth. The Sofala Bank was covered with acoustic transects approximately 15 nm apart. As no major aggregations of pelagic fish was detected, a more intensified sampling

programme was not implemented. During daytime, when in shallow waters, neighbouring preallocated random trawl hauls were worked out as part of the shrimp survey. 45 trawl stations were carried out as part of the shrimp survey.

As detected pelagic resources on the Sofala Bank were less than expected, the acoustic survey was continued southwards on the narrow shelf from Basaruto island to Boa Paz Bank, to look for possible migration into this area.

Calibration of the acoustic instruments was tried behind Bazaruto Island where sheltered conditions were found. However, the tidal currents in the channel between the island and mainland proved out to be too strong to enable positioning of the copper sphere, and the exercise was interrupted.

The cruise was completed with work on the two southern standard hydrographical sections. Arrival Maputo was on 31 August.

## CHAPTER 2 HYDROGRAPHY

In addition to the continuous recording of the surface temperature, a dense net of CTD stations were sampled on the Sofala Bank as shown in Figure 1a-b. The collected oceanographical data will be processed and interpreted by IIP.

# CHAPTER 3 DISTRIBUTION AND ABUNDANCE OF PELAGIC FISH FROM THE ACOUSTIC OBSERVATIONS.

The acoustic integration system provides observations of fish densities. The units of acoustic reflection used is  $0.1 \, \text{x} \, \text{m/mm}^2$  reflecting surface. Because of low fish densities and a high number of species no attempt was made to allocate the integrator values among the types of fish, carangids, clupeids, engraulids and scombrids which contributed to them. This type of analysis may be tried in a general way later on the basis of the catch rates and frequency of appearance of the various main groups by depth strata. Reference is made to Annex I for description of the instruments and their use.

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

Figure 2 shows the distribution of all fish based on the fractions of the integrator readings allocated to fish. As in the previous survey, the overall densities are low and with no aggregations detected that could be target for industrial fishing activities. For most part of the Sofala Bank, the integrator readings are close to the detection threshold of the acoustic system. From this follows that the precision of the method becomes low because of the difficulties of discerning the mostly very scattered traces of fish from those of commonly occurring plankton.

The pelagic resources between Angoche and Bazaruto is estimated to 127 thousand tonnes. During the survey few occations gave reasons for targeted trawling on acoustic registrations.

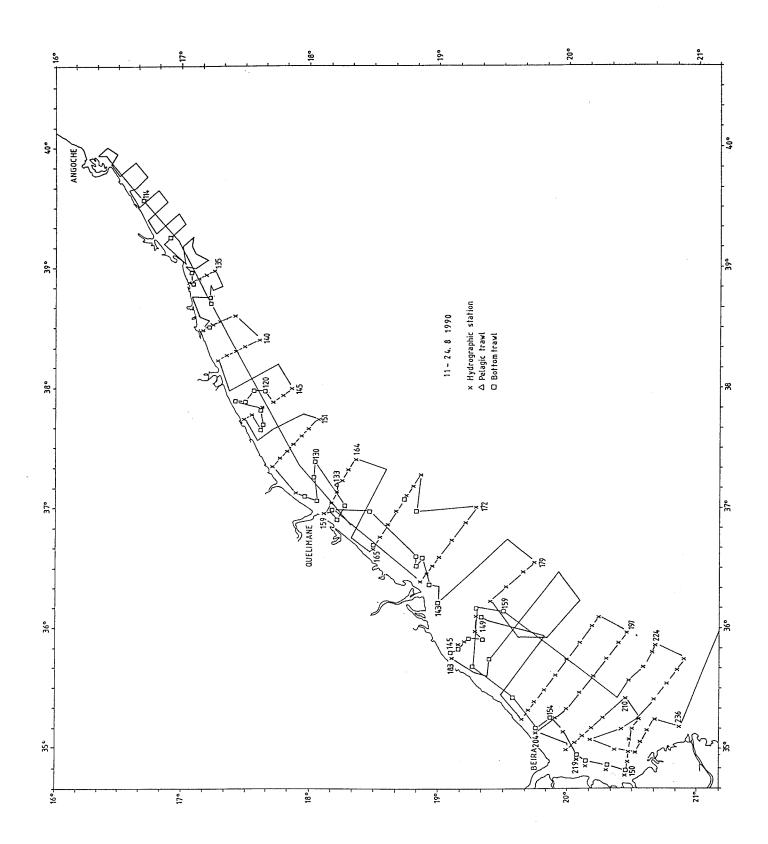


Figure 1a. Sofala Bank. Course tracks, fishing and hydrographical stations

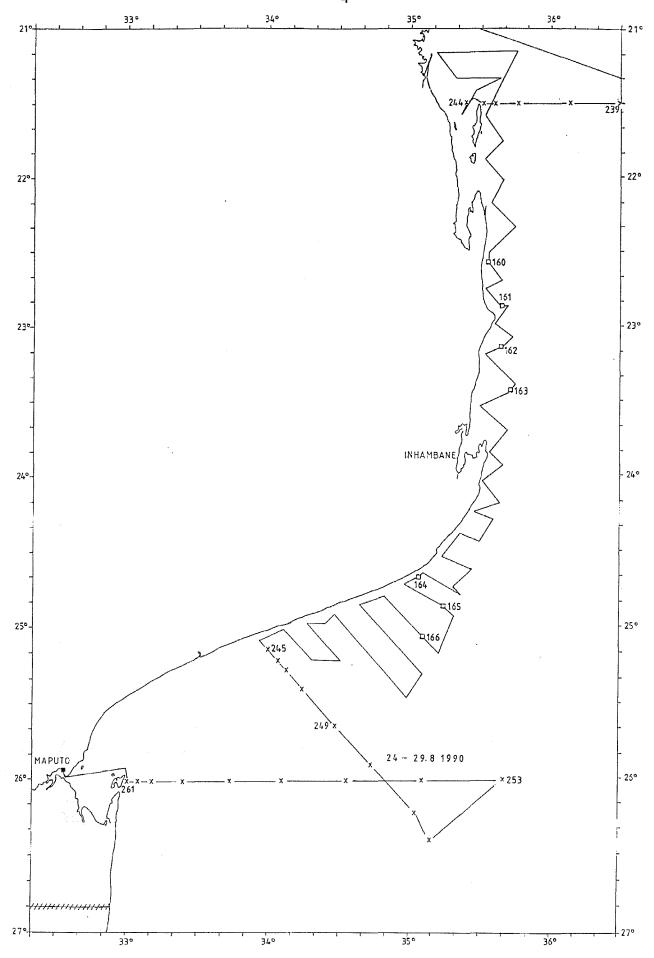


Figure 1b. Bazaruto-Maputo. Course tracks, fishing and hydrographical stations

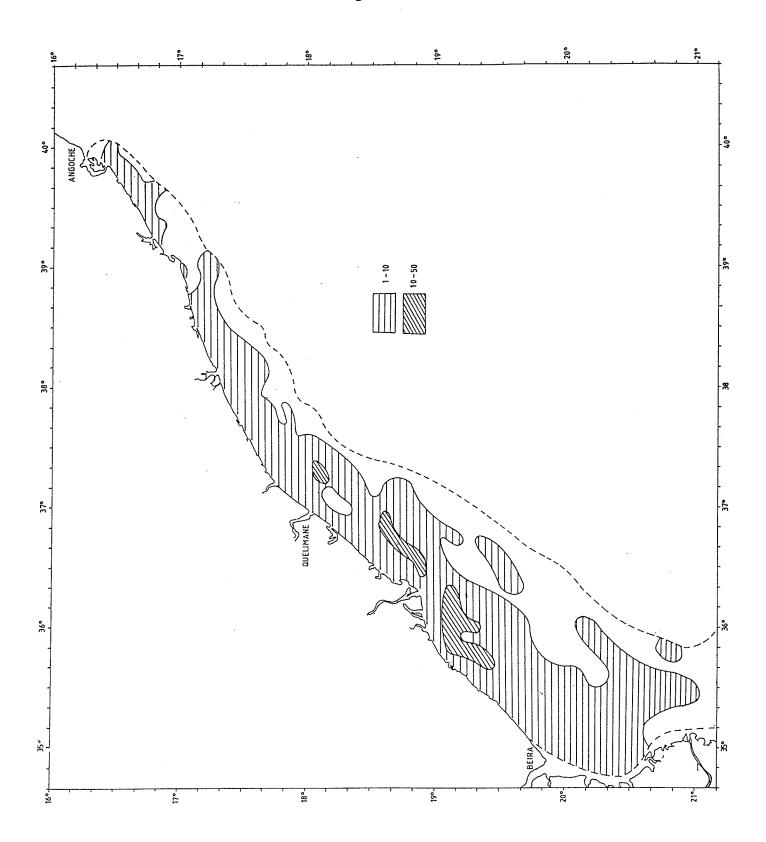


Figure 2a. Sofala Bank. Distribution of fish from observations by the acoustic system

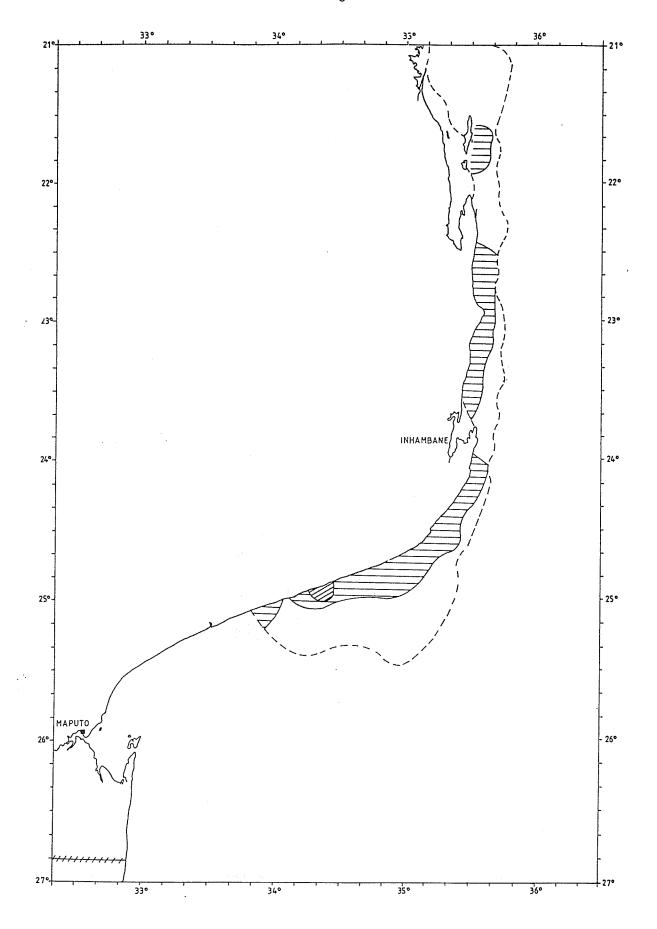


Figure 2b. Bazaruto-Maputo. Distribution of fish from observations by the acoustic system

Information on the relative abundance of pelagic and semi-pelagic species can be drawn from the bottom trawl stations:

Pellona ditchela	55%
Thryssa vitrirostris	18%
Trichiurus lepturus	10%
Scomberomorus commersoni	6%
Secutor insidiator	4%
Leiognathus equulus	4%
Rastrelliger kanagurta	3%

This represents catches mainly between 10 and 50 m bottom depth, and its striking that scad and other carangids are missing in the catches. They have however a more offshore distribution as was observed during the May survey.

In May the pelagic stocks of the Sofala Bank were estimated to 200 000 tonnes, about 60% higher than the present estimate. The difference may be ascribed the low densities, which, as already mentioned, may result in a lower precision of the estimates.

On the shelf between Bazaruto and the Boa Paz Bank only very scattered distributed pelagic resources were recorded. The pelagic estimate for this region is 24 000 tonnes.

Figure 3a shows the distributions of 5-mile integrator values by size classes (density classes) for the two acoustic surveys in 1990. The figure shows that most of the registrations are from scattered distributions less than 10 mm/nm<sup>2</sup>. 61 readings (10% of all readings) were in the range 11-30 mm/nm<sup>2</sup>, and only 14 readings (2%) were greater than 30 mm/nm<sup>2</sup> during the survey in May. In August these frequency counts were reduced to 31 (5%) and 1 (0.2%) respectively.

As the survey grid is fairly evenly distributed a rough picture of the distribution of the biomass can be obtained by multiplying the above frequencies with the mean integrator density in each class. Figure 3b shows the result. It is shown that 40% of the biomass is found in densities giving readings less then 10 mm/nm² in May, while in August this is increased to 60%. The density class 10-30 mm/nm² holds 36% of the biomass in May and 35% in August. The more dense aggregations (30 mm/nm²) stands for 25% of the biomass in May, but only 3% in August. The second survey thus demonstrates a more scattered distribution with almost total absense of any dense schools.

# CHAPTER 4 RESULTS OF THE TRAWL SURVEY, CATCH COMPOSITIONS

All catches were sampled for composition in weight and numbers by species, and size sampling was made for important species, using total length. Pooled histograms are presented in ANNEX II while the complete records of fishing stations are shown in ANNEX III.

Generally, hauls were of 30 minutes duration, but the catch data are presented standardized to kg/hour. All swept area hauls were made at daylight. The length of the haul over the bottom was recorded using a GPS satellite navigator with an accuracy of +/-0.03 nm (50 m).

# Distribution 5-mile integrator values Mozambique 1990

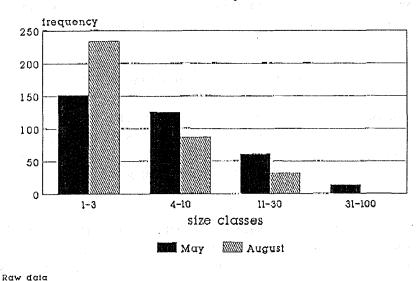
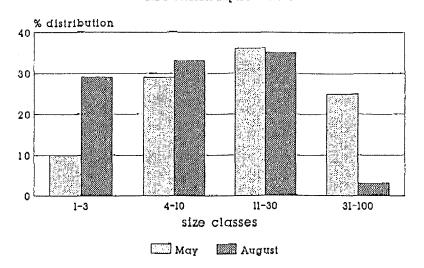


Figure 3a,b. Grouped frequency distribution of integrator data classified as fish (a), and biomass dtribution based on the same data (b).

## Biomass distribution by density levels Mozambique 1990



The data will be fully processed and interpreted by the scientists of IIP, Maputo who are responsible for the planning of this particular programme. A preliminary analysis on the data collected is given below.

## 4.1 THE SOFALA BANK (ANGOCHE TO BAZARUTO ISLAND)

The research programme in this area included 45 swept area hauls, 29 of which were at depths less than 20 m and 16 in the bottom depth range 20-50 m. Table 1 shows the standardized catch rates for main groups in the random hauls split by 20m bottom depth.

A rough first estimate gives an average density of penaeid shrimp of 140 kg/nm in the 0-20 m bottom depth range, and 90 kg/nm in the 20-50m range, applying a catchability coefficient of 1.0. Table 2 shows the density estimates by dominating species and two bottom depth strata for the Sofala Bank.

СУДСЯ	Β¥	STATIONS	SORTED	BY	GROUPS	(in	kg/hour):
CAICA	DI	DIMITONS	かんなくていひ	~	OLCOOL D	/ ***	113/11000/

Sofala Bank 0-20 m

ST.NO.	DEP.	Penaeids	Other shr.	Pelagic	Demersal	Squid	Other
113	18			76.22	0.80	0.20	10.60
114	13			46.72	1.42	0.20	13.14
115	19	0.32		346.58	53.40		173.60
116	12	15,20	1.00	34.00	19.80		105.40
117	9	13.64	14.80	39.40	20.80	7.40	131.10
118	9 18	16.74	50.00	20.50	11.30	1.80	21.40
119	13	6.07	22.50	14.51	9.18	1.11	10.54
122	14	3.26	35.00	58.26	63.82	1.88	32.04
123	11	6.24	24.88	52.36	23.06	1.24	28.38
124	17	4.24	30.26	56.52	72.92	2.24	19.26
125	14	3.88	50.90	37.82	34.88	0.48	39.16
126	12	4.64	19.86	38.28	24.22	0.66	33.40
127	9	10.62	5.60	9.64	6.04	0.48	28.80
128	11	3.26	28.00	36.60	25.00	0.40	53.20
132	11	7.24	20.00	25.47	63.11	0.73	24.16
134	16	4.77	8.23	55.35	86.66	1.31	17.45
137	13	8.22	9.80	28.70	68.60	1.60	41.30
140	20	6.43		67.43	- 2.68	4.24	22.04
142	11	3.06	3.40	49.80	101.20	3.20	44.00
143	16	14.36	2.42	41.94	93.28	1.32	37.32
145	10	0.46		265.22	0.78	1.70	78.60
146	13	1.71		301.45	6.38	2.12	39.66
150	12	9.32		1151.00	21.20		29.00
151	9	0.66		516.42	26.10		90.80
152	8	1.88		471.28	183.08	13.34	232.30
153	10	3.22		1140.84	205.20		693.70
154	17			11.63	0.08	0.26	1.64
155	16	1.18		24.00	41.26		41.36
156	17	3.60	1.20	37.70	67.80	1.20	47.90
157	12	0.24		82.52	0.30	0.20	15.44
MEAN		5.15	10.93	171.27	44.48	1.64	71.89

Total number of stations: 30

CATCH BY STATIONS SORTED BY GROUPS (in kg/hour):

Sofala Bank 20-50 m

ST.NO.	DEP.	Penaeids	Other shr.	Pelagic	Demersal	Squid	Other
120	40	11.08	0.56	113.14	29.60	0.68	114.28
121	27	5.00	0.12	65.68	11.88	0.14	12.42
129	36	9.02	0.08	7.68	4.56	0.40	23.12
130	37	8.14		204.82	32.09		144.63
131	22	0.76		13.88	1.30	0.20	15.38
135	41			43.10	99.90	1.84	33.14
136	39			90.50		3.49	23.56
138	24	0.46		419.10	28.80		32.20
139	21	1.38		40.68	0.10	0.42	16.89
140	20	6.43		67.43	2.68	4.24	22.04
141	25	7.12		75.06	0.50	1.76	143.50
144	22	0.18		71.24	0.80	1.46	13.36
147	24	1.44		71.50	1.90	1.80	15.60
148	24	0.16		32.50		2.20	3.00
149	31			65.34		15.00	26.74
158	27			85.24		22.32	6.88
159	30			31.72		18.62	4.42
MEAN		3.01	0.04	88.15	12.59	4.39	38.30

Total number of stations: 17

Table 1a,b. Sofala Bank. Catch rates by main catrgories of fish.

0-20 m upper table, and 20-50 lower table

A more detailed analysis done by the staff of IIP, using standard strata, gives a total estimate of penaeid shrimps of 893 tons which are split as follows:

Metapenaeus monoceros	407t
Penaeus indicus	218t
P. japonicus	191t
P. monodon	54t
P. semisulcatus	23t

In this analysis an effective width of the gear of 18m, and a catchability coefficient of 1.0 was applied. The results are preliminary and a final report will be made by IIP.

SWEPT AREA ANALYSIS FROM STATION 113THROUGH STATION 159

						_					
SPECIES NAME					KG/NM GROUPS 300-1000 >1000	% inci- dence	Mean dens.	Mean densit - 20m	ties by bott 20- 50m	om depth sti 50-100m	
	~10	10-50	30-100	100-300	300-1000 >1000	deika	t/nm²	- 20m	20- 50m	50-100m	100-200
Pellona ditchela	23	5	3	4		78	2.35	3.22	0.77		
Thryssa vitrirostris	23	11	1			78	0.77	1.03	0.30		
Trichiurus lepturus	30	1	2			73	0.44	0.55	0.24		
Pomadasys maculatum	21	1	2			53	0.35	0.47	0.15		
Therapon theraps	21			1		49	0.32	0.45	0.07		
Upeneus vittatus	23	3	1			60	0.28	0.30	0.26		*
Johnius dussumieri	15	5				44	0.26	0.40	0.01		
Scomberomorus commersoni	11	3				31	0.24	0.09	0.51		
Arius dussumierii	10		2			2 <b>7</b>	0.23	0.36			
CARIDEA	16	2				40	0.19	0.30			
Secutor insidiator	20	4				53	0.19	0.26	0.05		
Herklotsychthis quadrimaculatu	u 3		1			9	0.19		0.52		
Otolithes ruber	22	1				51	0.17	0.27			
Pomadasys kaakan	16	1				38	0.16	0.23	0.03		
Leiognathus equulus	12	2				31	0.15	0.17	0.10		
Rastrelliger kanagurta	9		1			2 <b>2</b>	0.11	0.01	0.29		
Sphyraena flavicauda	11	1				27	0.10	0.11	0.07		
Scomberomorus plurilineatus	5		1			13	0.10	0.14	0.02		
Upeneus sulphureus	17	1				40	0.08	0.02	0.19		
Metapenaeus monoceros	32					71	0.06	0.06	0.05		
Loligo duvauceli	11					24	0.05		0.13		
Cynoglossus attenuatus	23					51	0.05	0.06	0.02		
Carangoides malabaricus	12					27	0.05	0.05	0.05		
Penaeus indicus	28					62	0.04	0.06	0.01		
Penaeus japonicus	27					60	0.02	0.01	0.03		
Penaeus monodon	11					24	0.01	0.01			
Solenocera choprai	1					2					
Metapenaeus stebbingi	13					29		0.01			
Penaeus latisulcatus	1 9					2					
Penaeus semisulcatus PENAEIDAE	13					20 29			2.01		
SHRIMPS	1					29			0.01		
Other fish	1					2	0.04	0.75	0.07		
other (1811							0.84	0.75	0.87		
Sum all species							7.80	9.39	4.75		
8 6											
Sum Snappers							0.05		0.13		
Sum Groupers							0.01		0.03		
Sum Grunts							0.52	0.72	0.18		
Sum Croakers							0.45	0.69	0.02		
Sum Seabreams Sum Sharks							0.05				
							0.06	0.09			
Sum Rays							0.01	0.01			
Sum Squids Sum							0.09	0.04	0.13		
Sum shrimps (excl. SHRAA01)							0.32	0.45	0.10		
Number of stations included in	anal	lysis,	total	and by d	epth strata		45	29	16		

Table 2. Sofala Bank. Swept area analysis by two bottom depth strata.

Figure 4. shows observed depth distributions by the four most important penaeid shrimps found on the Sofala Bank. *Penaeus monodon* and *P. indicus* tend to have a more shallow distribution than *P. japonicus* and *Metapenaeus monoceros* which shows a wider depth distribution.

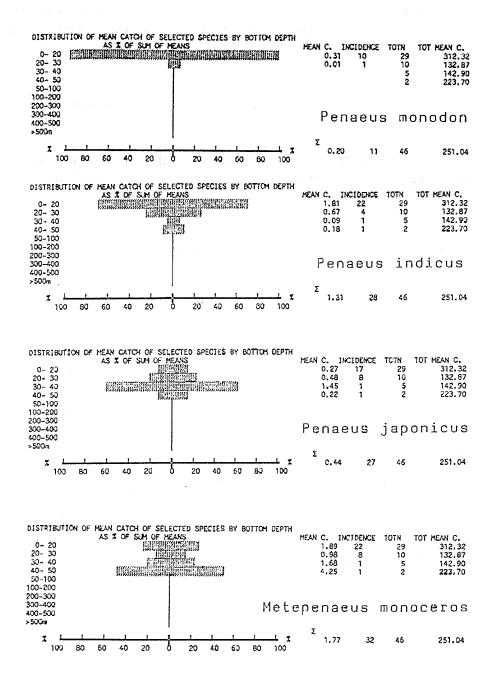


Figure 4. Sofala Bank. Depth distribution of four species of shrimp.

## 4.2 BAZARUTO TO BOA PAZ BANK

Seven bottom trawl hauls were carried out in this area, st.no. 160-166. The area shows a clear faunal change from the softbottom community of the Sofala Bank, where shrimps and ponyfish, are replaced with harder bottom types such as seabreams, groupers and cephalopods, including octopus. Corals were common in the trawl, and at several locations trawling operations were risky with respect to damaging the gear. Two good catches of seabreams were obtained, with 1800 kg/hour at st 166 and 525 kg/hour at st 161.

Mean catch of commercial demersal fish (seabreams, snappers, grunts, groupers and croakers) from 7 hauls was 444 kg/hour.

Hauls were too few to conclude anything about the level of the biomass, but catches contained high shares of big sized fish, indicating that these stocks are not overfished.

SUMMARY ON CATCHES BY SELECTED GROUPINGS PROJECT CODE: M3 FROM ST.NO. 160 TO ST.NO. 166

Bazaruto-Boa Paz Bank CATCH BY STATIONS SORTED BY GROUFS (in kg/hour):

ST.NO.	DEP.	Pėnaeids	Other shr.	Pelagic	Demersal	Cephalopod	Other
160	22			55.12		0.10	7.68
161	140				525.64	0.32	10.56
162	108				99.74	51.34	13.08
163	178						20.00
164	26			12.30			100.00
165	122				241.82	103.66	84.5
166	94				1800.00		200.00
MEAN	<b></b> -			9.63	381.03	22.20	62.2

Total number of stations :

Table 3. Bazaruto to Bao Paz Bank. Catch rates by main categories of fish.

### ANNEX I INSTRUMENTS AND FISHING GEAR USED.

#### ACOUSTIC INSTRUMENTS

Two SIMRAD scientific echo sounders, EK 400/38 kHz and EK 400/120kHz 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
0-100 or 0-250	0-100
High (5000 W Nom)	High (1250 W Nom)
3.3 kHz	3.3 kHz
0.5 ms	1 ms
20 log R	20 log R
20 dB	0
7	5
Split beam	Ceramic 10cm
	0-100 or 0-250 High (5000 W Nom) 3.3 kHz 0.5 ms 20 log R 20 dB 7

QD settings: Threshold 10 to 24 mv. Gain: 35.9

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 Bahia dos Tigres, Angola on 12/6 -90 gave the following results: 30x30 transducer: SL+VR 142.0, instr.constants 1ms 0.82, 0.5 ms 1.94; gain QD: 1ms 28.9, o.5 ms 32.7. ES transducer: SL+VR 135.4, instr.constant 3.89, gain QD 36.1.

## HYDROGRAPHY

Use was made of a CTD sonde belonging to IIP. The instrument was calibrated against casts with Nansen bottles.

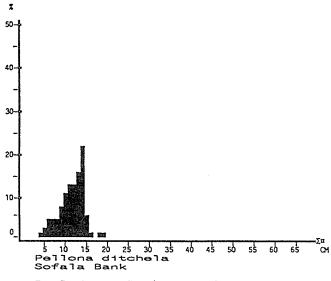
## FISHING GEAR

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

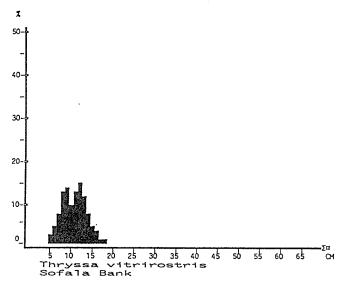
Pelagic trawl: Bottom trawl was used with floats for surface tows in shallow water and in deeper water a modified "Harstadtrawl" with a vertical opening of 20-25m was used.

Cod ends of trawls with fine meshed inner lining.

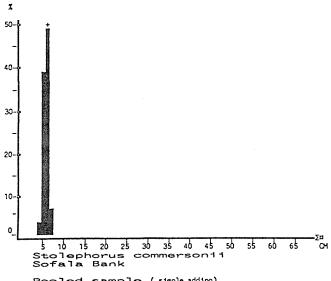
## ANNEX II LENGTH DISTRIBUTION OF COMMON SPECIES



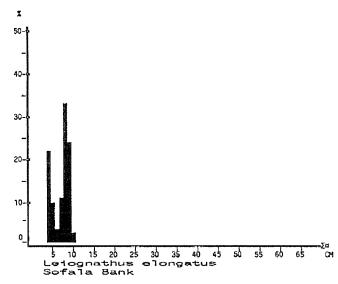
Pooled sample (simple adding)
MEAN LENGTH = 11.62cm N= 865
NUMBER OF SUBSAMPLES: 9
SAMPLES FOUND BETWEEN ST. NO. 120 AND 156,
SAMPLES SEARCHED BETWEEN ST. NO. 113 AND 159.



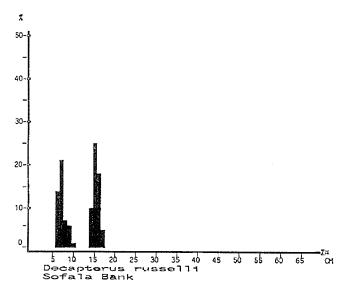
Pooled sample (simple adding)
MEAN LENGTH = 10.75cm N= 1315
NUMBER OF SUBSAMPLES: 12
SAMPLES FOUND BETHEEN ST. NO. 115 AND 156.
SAMPLES SEARCHED BETWEEN ST. NO. 113 AND 159.



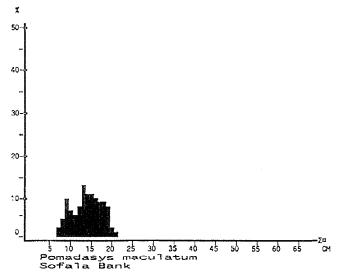
Pooled sample (simple adding)
MEAN LENGTH = 5.63cm N= 343
NUMBER OF SUBSAMPLES: 3
SAMPLES FOUND BETWEEN ST. NO. 113 AND 131.
SAMPLES SEARCHED BETWEEN ST. NO. 113 AND 159.



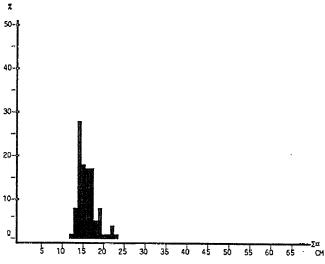
POOTED SAMPLES ( simple adding)
MEAN LENGTH = 6.97cm N= 164
NUMBER OF SUBSAMPLES: 2
SAMPLES FOUND BETHEEN ST. NO. 135 AND 158.
SAMPLES SEARCHED BETWEEN ST. NO. 113 AND 159.



Pooled sample (simple adding)
MEAN LENGTH = 11.59cm N= 94
NUMBER OF SUBSAMPLES: 2
SAMPLES FOUND BETWEEN ST. NO. 136 AND 159.
SAMPLES SEARCHED BETWEEN ST. NO. 113 AND 159.

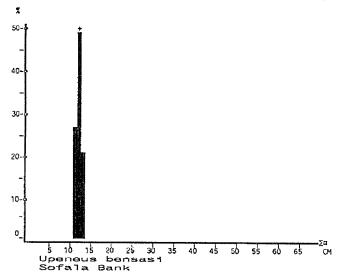


POOTED SAMPLE (Simple adding)
MEAN LENSTH = 13.87cm N= 165
MUMBER OF SUBSAMPLES: 3
SAMPLES FOUND RETHEEN ST. NO. 115 AND 155.
SAMPLES SEARCHED BETHEEN ST. NO. 113 AND 159.

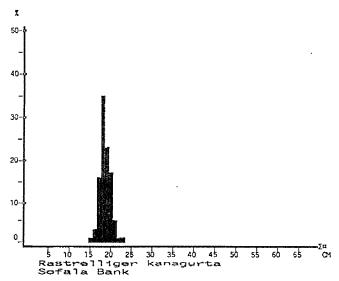


Carangoides malabaricus Sofala Bank

POOTED SAMPIE (simple adding)
MEAN LENGTH = 15.88cm N= 90
NUMBER OF SUBSAMPLES: 2
SAMPLES FOUND SETWEEN ST. NO. 114 AND 148.
SAMPLES SEARCHED BETWEEN ST. NO. 113 AND 159.



POOTEC SAMPLE (simple adding)
MEAN LENGTH = 11,94cm N= 50
NUMBER OF SUBSAMPLES: 1
SAMPLES FOUND BETWEEN ST. NO. 136 AND 136,
SAMPLES SEARCHED BETWEEN ST. NO. 113 AND 159.



POOTED SAMPLE ( simple adding)
MEAN LENGTH = 18.59cm N= 73
NUMBER OF SUBSAMPLES: 1
SAMPLES FOUND BETHERN ST. NO. 138 AND 138,
SAMPLES SEARCHED BETHERN ST. NO. 113 AND 159.

## ANNEX III RECORDS OF FISHING STATIONS

TIME :09:00:00 09:30:00 LOG :6183.60 6185.40 FDEPTH: 18 18 BDEPTH: 18 18	GERR TYPE: BT No:1 POSI iration 30 (min) Purpose code: 3 1.80 Area code: 1 GearCond.code: Validity code: 1		DATE:13/ 8/90  Start s  TIME :14:29:00 14  LOG :6459.70 64  FDEPTH: 8  ROCETH: 8	CDAR TYPE: BT No:1 top duration :59:00 30 (min) Purpose C 61:10 1.40 Area code 9 GestCond. 9 Validity 60* Wirs out: 100 m Spee	: 1 code: code: 1
	fire out: 150 m Speed: 36 k :1 catch: 43,90 CATCH	/HOUR: 87.80	Sorted: 7 Kg	Total catch: 113.50	CATCH/HOUR: 227.00
SPECIES Secutor insidiator Dusumieria acuta Sandinella melanura Sandinella melanura Upeneus Vittatus Stolephorus commersonia Parastromateus niger Therapon jarbus Corangol derbeis Megalapis cordyla Pomidsys maculatus Sepia prashodi Sepia prashod	CATCH/HOUR veight numbers 41.00 2698 10.60 356 8.80 22 294 4.40 28 2.80 1166 2.00 140 1.20 8 11.20 8 11.20 8 11.20 8 10.80 8.80 8.80 8.80 8.80 8.80 8.80	OF TOT. C SAMP. 46.70 12.07 10.02 9.13 5.69 5.01 1.19 2.26 1.37 1.37 1.14 0.91 0.91	Trichiurus lepturus Thryssa Vitrirostris CARIDEA CARID	124.60 32.80 14.80 7.40 6.00 6.00 5.34 4.88 3.30 1.64 1.52 1.40	mbers 3152 54.89 5592 14.45 5592 55.20 208 5.20 218 2.26 30 2.64 412 2.35 416 2.19 2 1.54 386 1.32 12 0.67 228 0.62 220 0.26
Total	67.82	100.02	PENAEIDAE Total	227.14	100.04
TIME :15:06:00 15:36:00 LOG :6243.60 6245.20 FDEPTH: 12 13 BDEPTH: 12 13 Towing dir: 50	GEAR TYPE: BT No:1 POSI iration 30 (min) Purpose code: 3 1.60 Area code : 1 GearCond.code: Validity code: 1 Vire out: 100 m Speed: 32 k		3 DATE:14/ 8/90 start s TIME :09:31:00 10 LOG :6503.70 65 FDEPTH: 18 EDEPTH: 18	CEAR TYPE: BT Noil duration 1:01:00 30 (min) Purpose c 05.00 1,30 min Purpose c 17 GearCond. 17 Validity 150 Wire out: 150 m Spee Total Catch: 60.00	: 1 code: code: 1
SPECIES	veight numbers	OF TOT, C SAMP.	NO. SPECIES	CATCH/III	UR & OF TOT. C SAMP.NO.
start stop du	13.36 352 10.86 10 7.00 492 6.50 78 4.00 4 3.68 30 1.64 6 1.60 4 1.58 28 1.04 2 1.06 2 1.06 2 1.06 2 1.07 2 0.92 2 0.20 8 0.20 8 0.10 2	21.76 17.69 275 11.40 273 10.59 274 6.06 6.06 6.06 7.61 2.57 2.61 2.57 2.51 2.55 1.92 1.69 1.50 0.33 0.33 0.33 0.33 0.33 0.33 0.33 0	CARIDEA Thryssa vitrirostria Penaeus sonodon Otolithes ruber Cross vitrirostria Netspenaeus sonodon Otolithes ruber Condition sulphureus Unders sulphureus Unders sulphureus Unders vittatus Trichjurus lepturus Sardineila sp. Pellona ditchela CRUSTACTANS SEPIJONE NORMES ANGUINE JORNES JOHNIUS JAPONICUS JOHNIUS JAPONICUS JOHNIUS ANDICUS JOHNIUS ANDICUS JAPONICUS LATYCEPHALIDAE ADOGOT ADOGOT TYSSS SETIFONTIS POLYPERMES SETIFONTIS POLYPERMES SETIFONTIS POLYPERMES SETIFONTIS POLYPERMES SETIFONTIS	50.00 14.90 6.38 5.00 4.68 4.40	abers
TIME :06:22:00 06:52:00 LOG :6389.50 6391.40 1 FDEPTH: 20 18	.90 Area code : 1 GearCond.code:		Total	121.74	101.50
Towing dis: 25° W Sorted: 28 Kg Tota: SPECIES	Validity code: 1 for out: 150 m Speed: 38 km catch: 287.00 CATCH/ CATCH/HOUR & weight numbers 142.20 34		TIME :16:02:00 16 LOG :6545.90 65	11 Gearcond, 11 Validity	: 1 code: code: 1
Scomberomorus plurilineatus Uppneus vittatus Thrysas vitrirostris Secutor insidiator Secutoris S	114,80 4522 58.40 1148 55.00 6666 43.00 1018 33.55 1018 33.25 1018	20.00 279 10.17 276 9.76 9.76 9.76 9.79 277 5.85 280 5.37 2.26 1.22 1.85 1.81 1.46 0.73 0.45 0.14 0.17 0.03 0.02	Sorted: 10 Kg  SPECIES  CARIDEA Thryssa vitrirostria Trichiurus lepturus Otolithes ruber Johniur Chas Penseus Indicus Plectorhinchus gibbus Metapenseus monoceros ANGULLINTOMES Cynoglossus attenuatus SPETION Penseus Japonicus Penseus Japonicus Penseus sesisulcatus Total	22, 50 14, 51 4, 50 3, 71 3, 07 2, 81 2, 49 2, 40 2, 36 1, 85	CATCH/HOUR: 63.88  UR & OF TOT. C SAMP.NO. abers 11843 35.22 1099 22.71 283 1132 7.01 1217 4.81 217 4.81 90 3.90 2 1.76 3.69 106 2.76 1143 7.74 111 1.69 4 0.14 2 0.08
TIME :13:10:00 13:16:100 LOG :6452.40 6452.70 0 PDEPTH: 12 12 BDEPTH: 12 12 Towing dir: 57- W	GFAR TYPE: BT No:1 POSIT ration 6 (min) Purpose code: 3		DATE:15/ 8/90	GPAR TYPE: BT No:1 top duration 104:00 30 (min) Purpose c 77.20 1.40 Area code 37 GearCond, 37 Validity 360 Wire out: 200 m Spee Total catch: 134.70	code: 1
SPECIES	weight numbers	OF TOT. C SAMP.	5. 5c. 1 5-		mbers
Trichiurus lepturus Thryssa Virirostris Pomodaya kaakan Penaeus Indicus Mideus Metapenaeus stebbingi Metapenaeus stebbingi Metapenaeus stebbingi Metapenaeus monceros Johnius dussumieri Leiopnathus equdius Trichium Metapenaeus Andidea PomtunipAn Cynoglossus attenuatus Alepes djeddaba Tellona ditchela Otolithes ruber Tellona ditchela Jolea bleekeri	96.50 610 26.60 2120 17.00 40 8.20 210 15.00 40 8.20 210 1.50 500 1.50 500 1.10 10 1.50 10 1.50 10 1.00 10 1.00 10 1.00 10 1.00 10 1.00 10 1.00 10 1.50 20 0.50 20 0.40 60 0.20 10	54.21 14.94 282 9.55 282 1.97 1.85 1.52 1.52 1.53 1.01 0.04 0.56 0.56 0.56 0.26 0.28 0.28 0.28 0.28	Thryasa vitriroatria Uppneus sulphureus Lelognathus equulus Pellona ditchela Pellona ditchela Pellona ditchela Pellona ditchela Pendugaya maculatus Lutjanus argentimacula Metapenaeus monoceros Lutjanus argentimacula Petapenaeus monoceros Lutjanus argentimacula Petapenaeus monoceros Lutjanus argentimacula Restructura Trichiumon berapa Savrida undosquesia Savrida undosquesia Savrida undosquesia Savrida undosquesia Savrida undosquesia Petapena ilateua Penaeus Penaeus Penaeus Penaeus Penaeus japonicus Penaeus jatisulcatus Penaeus latisulcatus Penaeus indicus Solenocera choprai Total	57.88 59.42 26.74 21.94 16.68 11.70 11.00 8.50 7.20 6.86 3.42 2.99 2.28 1.38 1.34 1.14 0.66 0.46	5254 25.20 287 3096 22.06 285 686 9.93 982 6.19 284 1782 6.19 286 4.00 4.94 4.01 4.00 4.21 6.0 7.16 6.0 7.25 7.0 7.0 7.0 1.0 7

DATE:15/8/90 GEAR T start stop duration TIME :08:38:00 09:08:00 30 (min LOG :6679.60 6681.50 1.90 FDEPTH: 29 24 BDEPTH: 29 24 Towing dir: 350 Wire out:	Area code GearCond.c Validity o	POSITION: Lat Long ode: 3 : 1 code: code:	PATION: 121 S 1736 E 3759	start stop duration TIME :15:14:00 15:44:00 30 (mi LOG :6723.90 6725.40 1.50 FDEPTH: 14 13 BDEPTH: 14 13	Area cod GearCond	code: 3 le : 1 l.code: r code: 1	ION:Lat Long	TION: 125 S 1739 E 3742
Sorted: 12 Kg Total catch:	47.50	CATCH/HOUR:	95.00	Sorted: 6 Kg Total catch	83.60	CATCH/	HOUR:	167.20
SPECIES	CATCH/HOU		C SAMP.NO.	SPECIES	CATCH/F	IOUR &	or tot. c	SAMP.NO.
Thryssa vitrirostris Pellona ditchela		nbers 18986 59.9 976 8.2		CARIDEA Stolephorus commersonii	50.90	umbers	30.44	
Pomadasys kaakan CRUSTACEANS	6.86 4.20	36 7.2 4.4	?	Johnius dussumieri Thryssa vitrirostris	17.44 17.20 15.76	1188 2762	10.43 10.29 9.43	
Johnius dussumieri Trichiurus lepturus	3.54 2.34	212 3.7 42 2.4	3	Drepane longimanna Otolithes ruber	12.12	96 24	7.25 5.80	
Upeneus vittatus Metapenaeus monoceros	2.26 2.22	84 2.3 138 2.3	3 1	Cynoglossus attenuatus Himantura gerrardi	7.76 7.30	776 2	4.64	
Penaeus indicus Upeneus sulphureus Otolithes ruber	2.20 2.20 1.48	54 2.3 100 2.3 42 1.5	2	Trichiurus lepturus Pomadasys kaakan	6.06 4.36	338 24	3.62 2.61	
Tryssa setirostris Polynemus sextarius	0.50	70 0.5 70 0.4	3	Johnius amblycephalus Scomberoides commersonianus Metapenaeus monoceros	2.40 2.18 1.86	48 2	1.44 1.30 1.11	
Sardinella melanura BOTHIDAE	0.36 0.36	8 0.3 22 0.3	3	Arius dussumierii BOTHIDAE	1.30	144 6 48	0.78	
Helicolenus dactylopterus Penaeus japonicus	0.36	14 0.3 10 0.2	7	Sardinella gibbosa Tryssa setirostris	1.22	48 72	0.73 0.73	
PENAEIDAE Sepia faraonis	0.22	36 0.2 36 0.1	5	Liza macrolepis Upeneus vittatus	1.22	24 72	0.73 0.73	
Cynoglossus attenuatus APOGONIDAE CARIDEA	0.14 0.14 0.12	14 0.1 28 0.1 48 0.1	5	Pomadasys maculatum Penaeus monodon Penaeus indicus	1.22 0.98	72 10	0.73	
Penaeus monodon Aetobatus narinari	0.10	2 0.1		Sepia faraonis Squilla sp.	0.90 0.48 0.48	28 146 96	0.54 0.29 0.29	
Total	95.24	100.2	š	Polynomus sextarius Penaeus japonicus	0.48 0.10	24	0.29	
				Metapenaeus stebbingi	0.04	2 .	0.02	
DATE:15/ 8/90 GEAR T	YPE: BT No:1	PROJECT S POSITION: Lat	TATION: 122 S 1732	Total	167.12		99.97	
start stop duration TIME :10:00:00 10:30:00 30 (mi		Lon	3 E 3754			PR	OJECT STA	TION: 126
LOG :6688.10 6689.90 1.80 FDEPTH: 14 14	Area code GearCond.	,: 1 code:		start stop duration	YPE: BT No:1		ION:Lat	
BDEPTH: 14 14 Towing dir: 350° Wire out	Validity of the control of the contr			TIME :16:35:00 17:05:00 30 (mi LOG :6730.40 6732.10 1.70	Area cod	code: 3 le :1	•	
Sorted: 10 Kg Total catch	97.10	CATCH/HOUR:	194.20	FDEPTH: 12 11 BDEPTH: 12 11	GearCond Validity	code: 1		
SPECIES	CATCH/HO	UR & OF TOT.	C SAMP.NO.	Towing dir: 60° Wire out Sorted: 7 Kg Total catch	: 125 m Spe	CATCH/		121.00
Thryssa vitrirostris	weight nur 56.00	mbers 8484 28.8	4		. 00.50	CATCA	nook:	121,00
CARIDEA Otolithes ruber	34.68	29166 18.0 282 17.8	6	SPECIES	CATCH/I weight i	numbers		SAMP.NO.
Johnius dussumieri Sphyraena barracuda Drepane longimanna	20.72 11.70 9.40	1452 10.6 2 6.0 94 4.8	2	CARIDEA Stolephorus commersonii Cynoglossus attenuatus	19.86	23656 19668	16.41	
Trichiurus lepturus Johnius amblycephalus	7.36 5.60	132 3.7 132 2.8	9	Johnius dussumieri Caranx lugubris	16.42 12.84 10.50	702 622 2	13.57 10.61 8.68	
Pomadasys maculatum Metapenaeus monoceros	2.82 1.90	56 1.4 162 0.9	5 8	Otolithes ruber Thryssa vitrirostris	8.74	146 3112	7.22 6.56	
LOLIGINIDAE Cynoglossus attenuatus	1.88	56 0.9 150 0.9	7	Arius dussumierii Trichiurus lepturus	6.00 4.90	186	4.96	
Gazza minuta Polynemus sextarius Tryssa setirostris	0.94 0.94 0.94	56 0.4 38 0.4 76 0.4	8	Metapenaeus monoceros Therapon theraps Pomadasys kaakan	4.46 3.44	256 80 14	3.69 2.84 2.18	
Penaeus Indicus Upeneus vittatus	0.86	34 0.4 76 0.3	4	Drepane longimanna Hilsa kelee	2.64 2.64 1.32	26 40	2.18	
Pellona ditchela Penaeus japonicus	0.38	76 0.2 14 0.1	4	Sepia faraonis Pellona ditchela	0.66	106 52	0.55 0.55	
Penaeus monodon Metapenaeus stebbingi	0.20 0.02	2 0.1		Tryssa setirostris Megalaspis cordyla	0.52	14 14	0.43	
Total	194.26	100.0	ī	Sardinella melanura Penaeus indicus	0.26 0.18	14 12	0.21 0.15	
DATE: 15/ 8/90 GEAR T	YPE: BT No:1	POSITION:Lat	S 1727	Total	121.06		100.05	
start stop duration TIME :11:08:00 11:38:00 30 (min	n) Purpose co	POSITION:Lat Lon ode: 3	S 1727 E 3754	DATE:16/ 8/90 GEAR T	121.06 YPE: BT No:1		OJECT STA	TION: 127 S 1758
start stop duration TIME :11:08:00 11:38:00 30 (min LOG :6694.20 6695.80 1.60 FDEPTH: 10 12 RDEPTH: 10 12	Area code GearCond.c	POSITION:Lat bode: 3 : 1 code: code:	S 1727	DATE:16/ 8/90 GEAR T	YPE: BT No:1	POSITI	OJECT STA	
start stop duration TIME :11:08:00 11:38:00 30 (min LOG :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200 Wire out	Purpose co Area code GearCond.c Validity o	POSITION:Lat Londe: 3 : 1 code: code: 1 l: 32 kn*10	S 1727 E 3754	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi. LGG :6853.20 6955.00 1.80 FDEPTH: 8 10	YPE: BT No:1 n) Purpose Area cod GearCond Validity	POSITI code: 3 le : 1 l.code:	OJECT STA ION:Lat Long	S 1758
start stop duration TIME :11:08:00 11:38:00 30 (min LOG :6694.20 6695.80 1.60 FDEPTH: 10 12 RDEPTH: 10 12	Purpose co Area code GearCond.c Validity o	POSITION:Lat bode: 3 : 1 code: code:	S 1727	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.20 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out	YPE: BT No:1 n) Purpose Area cod GearCond Validity : 100 m Spe	POSITI code: 3 le : 1 l.code: code: code: code: code:	OJECT STA ION:Lat Long	S 1758 E 3706
start stop duration TIME :11:08:00 11:38:00 30 (min LOG :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200 Wire out	Area code GearCond.c Validity c 100 m Speed: 68.10 CATCH/HOL	POSITION:Let Londe: 3 : 1 code: code: 1 : 32 kn*10  CATCH/HOUR: UR & OF TOT.	S 1727 E 3754	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi. LGG :6853.20 6955.00 1.80 FDEPTH: 8 10	YPE: BT No:1 n) Purpose Area cod GearCond Validity : 100 m Spe	POSITI code: 3 le : 1 l.code:	OJECT STA ION:Lat Long	S 1758
start stop duration TIME :11:08:00 11:38:00 30 (min LOS :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200 Hire out Sorted: 9 Kg Total catch	n) Purpose of Area code GearCond Validity of 100 m Speed: 68.10  CATCH/HOU weight num 51.00 24.88	POSITION: Let Londe: 3 : 1 : 1 : 10 : 12 : 32 kn*10  CATCH/HOUR:  UR	\$ 1727 ; E 3754 136.20 C SAMP.NO.	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.20 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out	YPE: BT No:1 n) Purpose Area cod GearCond Validity : 100 m Spe : 30.59	POSIT: code: 3 le : 1 l.code: code: code: code: code: code: code:	OJECT STA ION:Lat Long *10	S 1758 E 3706
start stop duration TIME :11:08:00 11:38:00 30 (min LOS :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch SPECIES Thryssa vitrirostris CARIDEA Johnius dussumieri Trichiurus lepturus	n) Purpose or Area code GearConde Validity of 100 m Speed: CATCH/HOU weight num 51.00 24.88 14.06 10.44	POSITION: Let Londe: 3	\$ 1727 E 3754	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi LOG :6853.20 6855.00 1.80 FDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch	YPE: BT No:1 n) Purpose Area cod GearCod Validity : 100 m Spe : 30.59  CATCH/F weight r 21.96 8.60	POSITI  code: 3 le : 1 l.code: 7 code: 1 led: 36 kn² CATCH/I  CATCH/I  IOUR 1 S4 2866	oject STA ION:Lat Long  *10 HOUR:  OF TOT. C 35.89 14.06	S 1758 E 3706
TIME :11:08:00 11:38:00 30 (min LOS :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch  SPECIES Thryssa vitrirostris CARIDEA Johnius dussumieri Trichiurus lepturus Arius dussumieri Otolithes ruber	n) Purpose or Area code GearCond Validity c: 100 m Speed: 68.10  CATCH/HOLWeight num 51.00 24.88 14.06 10.44 6.00 5.10	POSITION: Let Londer: 3 1 1 1 1 2 1 2	S 1727 G E 3754 136.20 C SAMP.NO.	DATE:16/ 8/90 GEAR T start stop duration TIME:07:00:00 07:30:00 30 (mi LOG:6653,20 6655,00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch SPECIES Arius dussumierii Thryssa vitrirostris CARIDEA Metapenaeus monoceros	YPE: BT No:1 n) Purpose Area cod GearCond Valldity: 100 m Spe : 30.59  CATCH/F weight r 21.96 8.60 5.60 5.46	POSIT: code: 3 le : 1 l.code:  code:  code:  led: 36 kn²  CATCH/I  IOUR  CATCH/I  2866 7000 496	OJECT STA ION:Lat Long *10 HOUR: OF TOT. C 35.89 14.06 9.15 8,92	S 1758 E 3706
start stop duration TIME :11:08:00 11:38:00 30 (mix LOS :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch  SPECIES Thryssa vitrirostris CARIDEA Johnius dussumieri Trichirurs lepturus Arius dussumieri Otolithes ruber Cynoglossus attenuatus Pomadasys kaakan	n) Purpose oc Area code GearCond.c Validity c : 100 m Spec : 68.10 CATCH/HOU Weight num 55.0 24.88 14.06 14.06 14.06 5.10 4.48 3.19 3.36	POSITION: Let Londer: 3 : 1 1 code: 3 code: 1 1 1: 32 kn*10 CATCH/HOUR:  UR & OF TOT. hbers 1334 37.4 13822 18.2 18.2 2 18.2 6 7.6 8 4.4 286 3.7 298 3.2 2 2.8 958 2.4	S 1727 E 3754 136.20 C SAMP.NO.	DATE:16/ 8/90 GEAR T stor duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.00 6855.00 1.00 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 kg Total catch SPECIES Arius dussumierii Thryssa vitrirostris CAIDEA Metapenaeus monoceros Johnius dussumieri Penaeus indicus	YPE: BT No:1 n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59  CATCH/i weight r 21.96 8.60 5.60	POSITI  code: 3 le : 1 l.code: code:	OJECT STA ION:Lat Long *10 HOUR: OF TOT. C 35.89 14.06 9.15 8.92 8.76 8.43	S 1758 E 3706
TIME :11:08:00 11:38:00 30 (min to	n) Purpose oc Area code GearCond.c Validity :100 m Spect: : 68.10 CATCH/HOU weight num 51.00 24.88 14.06 16.40 6.00 4.48 3.36 2.76 2.76	POSITION: Let Londer: 3 : 1 1 code: 3 code: 1 1 1 1 2 2 kn*10 CATCH/HOUR:  UR OF TOT. hbers 1334 37.4 13822 18.2 18.2 2 10.3 286 7.6 8 4.4 286 3.7 298 3.2 2 2.8 8 958 2.4 208 2.0 76 1.8	S 1727 E 3754 136.20 C SAMP.NO.	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi LOG :6853.20 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch  SPECIES Arius dussumierii Thryssa vitrirostris CARIDEA Metapenaeus monoceros Johnius dussumieri Penaeus indicus Cynoglossus attenuatus Squilla sp. Polynemus sextarius	YPE: BT No:1  n) Purpose Area cod GearCond Valldit : 100 m Spe : 30.59  CATCH/F weight r 21.96 5.60 5.46 5.36 5.16 2.00 1.28 1.00	POSIT: code: 3 e : 1.code: code: cod	DJECT STA ION:Lat Long *10 HOUR: 0F TOT. C 35.89 14.06 9.15 8.92 8.76 8.43 3.27 2.09	S 1758 E 3706
TIME :11:08:00 11:38:00 30 (min tog: 6694.20 6695.80 1.60: 16694.20 6695.80 1.60: 1694.20 6695.80 1.60: 1694.20 6695.80 1.60: 1694.20 1.60: 16	n) Purpose or Area code GearCond.c Validity illow is Special CATCH/HOU weight num 51.00 S 14.08 14.06	POSITION: Let Londer: 3 : 1 1 code: 3 code: 1 1 1 code: 3 code: 1 1 1 code: 3 kn*10 carch/Hour:  UR	S 1727 E 3754  136.20  C SAMP.NO. 4 7 2 7 7 1 4 9 6 6 7 7 3 2 4 1 1	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi LOG :6853.20 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch  SPECIES Arius dussumierii Thryssa vitrirostris CARIDEA Metapenaeus monoceros Johnius dussumieri Penaeus indicus Cynoglossus attenuatus Squilla sp. Polynemus sextarius Portunus sanguinolentus Otolithes ruber	YPE: BT No:1  n) Purpose Area cod GearCond Valldit : 100 m Spe : 30.59  CATCH/F weight r 21.96 8.60 5.66 5.36 5.36 5.36 5.16 2.00 1.28 1.00 0.96	POSIT: code: 3 le.code: 1 l.code: 2 code: 6 CATCH/I CATCH/I OUR 6 CATCH/I 100UR 6 100UR 10	DJECT STA ION:Lat Long *10 HOUR: OF TOT. C 35.89 14.06 9.15 8.92 8.76 8.43 3.27 2.09 1.63 1.57	S 1758 E 3706
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TIME : 11:08:00 11:38:00 30 (mix LOS :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch  SPECIES Thryssa vitrirostris CARIDEA Johnius dussumieri Trichirus lepturus Arius dussumieri Otolithes ruber Cynoglossus attenuatus Penaeus Indicus Tripauchen microcephala Sepia faraonis Upeneus vittatus Penaeus monodon Pellona ditchela Tryssa setirostris Therapon theraps  Total  DATE:15/ 8/90 GEAR T THE :13:33:00 14:03:00 30 (mix LOS :6712.40 6713.80 1.40 FDEPTH: 17 16 BDEPTH: 17 16 BDEPTH: 17 16 Sorted: 8 Kg Total catch	n) Purpose oc Area code GearCond. (100 m Spect 1100 m Spe	POSITION: Let Londer: 3	S 1727  S 1727  E 3754  136.20  C SAMP.NO.  47  77  TATION: 124  S 1738  E 3748  185.40  C SAMP.NO.	DATE:16/ 8/90 GEAR T Stop duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.00 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch SPECIES  Arius dussumierii Thryssa vifritostris CARIDEA (Missumierii Thryssa vifritostris CARIDEA (Missumierii Tenaeus Indicus Cynoglossus attenuatus Squilla sp. Polynemus sextarius Portunus sanquinolentus Otolithes ruber Sepia faraonis Therapon theraps PLATYCEPHIALIDAE Trichiurus lepturus Tryssa setirostris Pellona ditchela Tripauchem microcephala Leiognathus elongatus Upneus sulphureus Stolephorus commersonii Total  DATE:16/ 8/90 GEAR 7 Start stop duration TIME :08:28:00 08:58:00 30 (mi. DEPTH: 11 INDEPTH: 11 IND	YPE: BT No:1 n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59  CATCH/i weight: 21.96 8.60 5.46 5.36 5.36 2.00 1.00 0.96 0.68 0.40 0.40 0.40 0.40 0.40 0.40 0.40 0.4	FOSIT:  code: 3  ie : 1  .code: code: code: code: code: 1000	#10 HOUR:	S 1758 E 3706  61.18 C SAMP.NO. 290 291
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TIME : 11:08:00 11:38:00 30 (mix LOG :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Mire out Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris CARIDEA Johnibus dussumieri Totchiurus lepturus Arius dussumieri Otolithes ruber Cynoglosus attenuatus Pemadasys kaakan Squilla sp. Metapenaeus monoceros Penaeus indicus Tripauchen microcephala Sepia faraonis Upeneus vittatus Penaeus mondon Pellona ditchela Tryssa setirostris Therapon theraps  Total  DATE:15/8/90 GEAR Time : 13:33:00 14:03:00 30 (mix LOG :6712.40 6713.80 1.40 FDEPTH: 17 16 BDEPTH: 17 16 Towing dir: 360° Wire out Sorted: 8 Kg Total catch SPECIES  Thryssa vitrirostris Otolithes ruber CARIDEA Johnius dussumieri Pomadasys kaakan Pomadasys maculatum	n) Purpose oc Area code GearCond. (100 m Speed: 68.10 co. 100 m Spee	POSITION: Let Londer: 3 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1	S 1727  S 1727  E 3754  136.20  C SAMP.NO.  4  7  7  TATION: 124  S 1736  E 3748  185.40  C SAMP.NO.  131  142  122  149  160  185.40	DATE:16/ 8/90 GEAR T Start stop duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.00 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch SPECIES  Arius dussumierii Thryssa vitrirostris CARIDEA CARIDE	YPE: BT No:1  n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59  CATCH/i weight r 21.36 8.00 5.46 5.36 5.36 5.36 5.36 5.36 6.38 6.40 0.40 0.40 0.40 0.40 0.40 0.40 0.40	POSIT:  le : 1 l.code: 'code: 'code: 'ed: 36 kn' CATCH/I  IOUR \$  4 8 60 20 16 32 48 60 20 16 32 68 11 POSIT:  Code: 3 12 68 12 68 13 Code: 3 14 Code: 3 15 Code: 3 15 Code: 3 15 Code: 3 16 CATCH/I  HOUR \$ CATCH/I  HOUR \$ 10 CATCH/I  CATC	#10 HOUR:  *10  #10  #10  #10  #10  #10  #10  #10	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
TIME : 11:08:00 11:38:00 30 (mix LOG :6694.20 659.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris CARIDEA GONDALISTIC STATE CARIDEA GONDALISTIC CARIDEA TOMOROGON CONTROL TOMOROGON TIPIA TOMOROGON FORMATION THE :13:33:00 14:03:00 30 (mix CARIDEA TIME :13:33:00 14:03:00 30 (mix CARIDEA TOMING dir: 360° Wire out Sorted: 8 Kg Total catch  SPECIES Thryssa vitrirostris COLUMNIUS COLUMNIUS COLUMNIUS CONTROL TOMOROGON TOMOROGO	n) Purpose oc Area code GearCond. (100 m Spect 100 m S	POSITION: Let Londe: 3 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1	S 1727  S 1727  E 3754  136.20  C SAMP.NO.  4  7  7  TATION: 124  S 1738  E 3748  185.40  C SAMP.NO.	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.20 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch  SPECIES  Arius dussumierii Thryssa vitrirostris CARIDEA Metapenaeus monoceros Johnius dussumieri Penaeus indicus Cynoglossus attenuatus SPOLYMENUS sextarius Portunus sanguinolentus Otolithes ruber Spolare franchis Therapon theraps PLATYCEPHIALIDAE Trichiurus lepturus Tryssa setirostris Pellona ditchela Tripauchem microcephala Leiognathus elongatus Upeneus sulphureus Stolephorus commersonii Total  DATE:16/ 8/90 GEAR 7 TIME :08:28:00 08:58:00 30 (mi. LOG :6863.10 6864.00 1.70 FDEPTH: 11 11 BDEPTH: 11 Towing dir: 60° Wire out Sorted: 6 Kg Total catch	YPE: BT No:1  n) Purpose Area cod GearCond Validity: 100 m Spe: 30.59  CATCH/F Weight r 21.96  5.00  5.06  5.06  5.06  5.06  0.08  0.40  0.20  0	POSIT:  le : 1 l.code: 'code: 'code: 'ed: 36 kn' CATCH/I  IOUR \$ 0 10 20 40 60 194 48 60 20 16 32 68 48 60 20 16 32 68 60 17 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 20 60 60 20 60 60 20 60 60 60 60 60 60 60 60 60 60 60 60 60	DJECT STA ION:Lat Long *10 HOUR: OF TOT. C 35.89 14.06 9.15 8.92 2.09 2.0	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
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TIME : 11:08:0 stop duration  TIME : 11:08:0 stop 30 (min  LOG : 6694.20 695.80 1.60  FDEPTH: 10 12  BDEPTH: 10 12  Towing dir: 200 Wire out  Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris  CARIDEA Johnius dussumieri  Trichiurus lepturus Arius dussumieri  Otolithes ruber  Cynoglosus attenuatus  Penadasys kaakan  Squilla sp.  Metapenaeus monoceros  Penaeus indicus  Tripauchen microcephala  Sepia faraonis  Upeneus vittatus  Penaeus mondoha  Priysas attirostris  Therapon theraps  Total  DATE: 15/8/90  start stop duration  TIME : 13:33:00 1:403:00 30 (min  LOG : 6712.40 6713.80 1.40  FDEPTH: 17 16  BDEPTH: 17 16  BDEPTH: 17 16  BOEPTH: 17 16  Sorted: 8 Kg Total catch  SPECIES  Thryssa vitrirostris  Otolithes ruber  CARIDEA Johnius dussumieri  Pomadasys maculatum  Trichiurus lepturus Cynoglossus attenuatus Johnius amblycephalus  Schia faronis  Tryssa setirostris  Drepane longimanna  Upeneus vittatus	n) Purpose of Area code GearCond. (100 m Speed: 100 m Speed: 68.10  CATCH/HOU weight num 51.00  14.08 15.10 16.00 16.10 16.00 16.10 16.00 16.10 16.00	POSITION: Late Londer: 3	S 1727  S 1727  E 3754  136.20  C SAMP.NO.  47  77  TATION: 124  S 1738  G E 3748  185.40  C SAMP.NO.  134  125  126  137  138  149  185.40  C SAMP.NO.  134  125  126  137  138  138  138  138  138  138  138	DATE:16/ 8/90 GEAR T Start stop duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.00 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch SPECIES  Arius dussumierii Thryssa vitrirostris CARIDEA (Missumierii Thryssa vitrirostris CARIDEA (Missumierii Thryssa vitrirostris CARIDEA (Missumierii Thryssa vitrirostris CARIDEA (Missumierii Tenaeus indicus Congolossus attenuatus Squilla sp. Polynemus sextarius Portunus sanquinolentus Otolithes ruber Sepia faraonis Therapon theraps PLATCEPHIALIDAE Trichiurus lepturus Tryssa setirostris Pellona ditchela Tripauchem microcephala Leiognathus elongatus Upneus sulphureus Stolephorus commersonii Total  DATE:16/ 8/90 GEAR 7 Start stop duration TIME :08:28:00 08:58:00 30 (missumierii Total Towing dir: 60° Wire out Sorted: 6 Kg Total catch SPECIES  Thryssa vitrirostris CARIDEA Arius dussumierii Johnius dussumierii Johnius dussumierii Tripterodon orbis Otolithes ruber Squilla sp. Portunus sanguinolentus Upneus Sulphureus	YPE: BT No:1  n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59  CATCH/i weight 21.96 8.60 5.46 5.36 2.00 1.28 1.00 0.96 0.68 0.40 0.40 0.40 0.40 0.40 0.40 0.36 0.20 0.20 0.08  61.18  TYPE: BT No: : 100 m Sp :: 73.23  CATCH/i weight 34.00 26.00 21.00 27.00 28.00 29.60 20.00 21.00 20.00	FOSIT:  code: 3  ie : 1  .code: 4  code: 4  code: 4  code: 6  code: 16  2866  496  496  194  152  4  8  60  20  16  32  68  17  68  18  19  19  19  10  20  2	*10 HOUR:  *10 HOUR:  *10  *10  *10  *10  *10  *10  *10  *1	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
TIME :11:08:00 11:38:00 30 (mix LOG :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris CARIDEA Johnius dussumieri Trichiurus lepturus Arius dussumieri Ocolithes ruber Ocomedasys kaakan Squilla sp. Metapenaeus monoceros Penaeus indicus Tripauchen microcephala Sepia faraonis Upeneus vittatus Penaeus monodon Pellona ditchela Tryssa setirostris Therapon theraps  Total  DATE:15/8/90 CEAR T TIME :13:30:00 10 (mix BDEPTH: 17 16 Towing dir: 360° Wire out Sorted: 8 Kg Total catch  SPECIES  Thryssa vitrirostris Otolithes ruber CARIDEA Johnius dussumieri Pomadasys kaakan Pomadasys kaakan Pomadasys kaakan Pomadasys kaakan Pomadasys kaukan Poma	n) Purpose of Area code GearCond. (Availatity Called State of Cartch/Hot Weight num 51.00 (Availatity Called State of Cartch/Hot Availatity Called State of Cartch/Hot Availatity Called State of Cartch/Hot Availatity Called State of Cartch/Hot Cartch/Hot Cartch/Hot Meight num 51.60 (Availatity 150 m Spee Cartch/Hot Meight num 51.40 (Availatity 150 m Spee Cartch/	POSITION: Late Londer: 3	S 1727  S 1727  E 3754  136.20  C SAMP.NO.  4  7  14  9  6  7  TATION: 124  S 1738  G E 3748  185.40  C SAMP.NO.  13  4  10  289  10  10  289  10  10  289  10  10  10  289  10  10  10  10  10  10  10  10  10  1	DATE:16/ 8/90 GEAR T Start stop duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.00 6855.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch SPECIES  Arius dussumierii Thryssa vitrirostris CARIDEA Metapenaeus monoceros Johnius dussumieri Thryssa vitrirostris CARIDEA FORMER SQUIII as p. Polynemus sextarius Portunus sanguinolentus Otolithes ruber Sepia faraonis Therapon theraps PLATCEPHIALIDAE Trichiurus lepturus Tryssa setirostris Pellona ditchela Tripauchen microcephala Leiognathus elongatus Upeneus sulphureus Stolephorus commersonii Total  DATE:16/ 8/90 GEAR T Start stop duration TIME :08:28:00 08:58:00 30 (mi. GEAR T) SEPIE II 1 11 Towing dir: 60° Wire out Sorted: 6 Kg Total catch SPECIES  Thryssa vitrirostris CARIDEA Arius dussumieri Johnius dussumieri Johnius dussumieri Trichiurus lepturus Tripterodon orbis Otolius Supeneus Sulphureus Tripterodon Otolius Otoliu	YPE: BT No:1 n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59 CATCH// Weight: 21.96 8.60 8.60 8.60 8.60 1.20 0.36 0.48 0.40 0.40 0.40 0.40 0.40 0.40 0.40	FOSIT:  code: 3  e : 1 .code: - code: - code: - code: - code: code: code: code: code:	#10 HOUR:  #10 HOUR:  #10 HOUR:  #10 HOUR:  #10 HOUR:  #10 HOUR:  #14.06 9.15  8.92  8.76  8.43  3.27  2.09  1.67	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
TIME :11:08:00 11:38:00 30 (mix LOG :6694.20 6695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris CARIDEA Johnius dussumieri Trichiurus lepturus Arius dussumieri Trichiurus lepturus Arius dussumieri Otolithes ruber Cynoglossus attenuatus Regulia sp. Metapenaeus monoceros Penaeus indicus Tripauchen microcephala Sepia faraonis Upeneus vittatus Penaeus monodon Pellona ditchela Tryssa setirostris Therapon theraps  Total  DATE:15/ 8/90 CEAR 7  TIME :13:31:00 14:03:00 30 (mix LOG :6712.40 6713.80 1.40 FDEPTH: 17 16 BDEPTH: 18 10 1.40 FORMARS Maskan Pomadasys kaakan Pomadasys kaakan Pomadasys kaukan Pomadasys kau	n) Purpose of Area code GearCond. (Availatity Called Special Canton) (Availatity Canto	POSITION: Let Lorder: 3 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1	S 1727  S 1727  E 3754  136.20  C SAMP.NO.  4  7  14  9  6  7  TATION: 124  S 1738  G E 3748  185.40  C SAMP.NO.  3  4  10  289  10  10  289  10  10  289  10  10  289  10  10  10  10  10  10  10  10  10  1	DATE:16/ 8/90 GEAR T Story duration TIME :07:00:00 07:30:00 30 (mit LOG :6853.00 de55.00 10:685.10 30 FDEPTH: 8 10 BDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 kg Total catch SPECIES  Arius dussumierii Thryssa vitrirostris CARIDEA Material Canada Catch	YPE: BT No:1 n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59 CATCH/t veight: 8.60 5.46 5.36 5.16 2.00 0.96 0.68 0.40 0.40 0.40 0.40 0.40 0.40 0.40 0.4	FOSIT:  code: 3  le : 1  l.code: 4  code: 4  code: 5  code: 6  red: 36 km  CATCH/I  CATCH/I  CATCH/I  CATCH/I  CATCH/I  COURT  A 8  A8  A8  A8  A8  A8  A8  A8  A8  A	*10 Long  *10 Long  *10 HOUR:  OF TOT. C  35.89 14.06 9.15 8.92 8.76 8.43 3.27 2.09 1.63 1.57 1.11 0.78 0.05 0.65 0.65 0.65 0.65 0.65 0.65 0.65	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
TIME :11:08:00 11:38:00 30 (mix LOG :6694.20 695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris CARIDEA Johnius dussumieri Trichiurus lepturus Arius dussumieri Trichiurus lepturus Arius dussumieri Otolithes ruber Cynoglossus attenuatus Regulia sp. Metapenaeus monoceros Penaeus indicus Tripauchen microcephala Sepia faraonis Upeneus vittatus Penaeus monodon Pellona ditchela Tryssa setirostris Therapon theraps  Total  DATE:15/ 8/90 CEAR 7  TIME :133:00 14:03:00 30 (mix LOG :6712.46 6713.80 1.40 FDEPTH: 17 16 BDEPTH: 18 17 16 BDEPTH: 19 16 BDEPTH: 10 16 BDEPTH: 17 16 BDEPTH: 18 16 BDEPTH: 18 17 16 BDEPTH: 18 18 18 18 18 18 18 18 18 18 18 18 18	n) Purpose of Area code GearCond. (Availatity Called Special Cartal/House Special Cartal Cartal/House Special Cart	POSITION: Let Londer: 3 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 2 : 1 : 1	S 1727 S	DATE:16/ 8/90 GEAR T Story duration TIME :07:00:00 07:30:00 30 (mit LOG :6853.00 de55.00 10:685.00 BFDEPTH: 8 10 BDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 kg Total catch SPECIES  Arius dussumierii Thryssa vitrirostris CARIDEA Materia Gustafia Squilla sp. Polynemus sextarius Penaeus Indicus Cynoglossus attenuatus Squilla sp. Polynemus sanguinolentus Otolithes ruber Sepia faraonis Therapon theraps PLATYCEPHALIDAE Trichiurus leptrus Tryssa setfrostris Pelloma ditchelocephala Indipundatus Uspeneus sulphureus Stolephorus commersonii Total  DATE:16/ 8/90 GEAR 7 Start stop duration TIME :08:28:00 08:58:00 30 (mit LOG :6863.00 de64.00 1.70 FDEPTH: 11 11 DDEPTH: 11 11 DEPTH: 11 11 DDEPTH: 11 DEPTH: 11 11 DDEPTH: 11 11 DDEPTH: 11 DDEP	YPE: BT No:1 n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59 CATCH/F Veight r 28.60 5.46 5.36 5.16 2.00 0.96 0.40 0.40 0.40 0.40 0.40 0.40 0.40 0.4	FOSIT:  code: 3  le : 1  l.code: 4  code: 4  code: 4  code: 6  red: 36 km  CATCH/I  COURT 1  CATCH/I  COURT 1	#10 Long  #10 HOUR:  OF TOT. C  35.89 14.06 8.43 3.27 2.09 16.83 3.27 2.09 16.63 0.65 0.65 0.65 0.65 0.65 0.65 0.65 0.65	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
TIME : 11:08:00 11:38:00 30 (mix LOG : 6694.20 6895.80 1.60 FDEPTH: 10 12 TOWING dir: 200° Wire out Sorted: 9 Kg Total catch SPECIES  Thryssa vitrirostris CARIDEA Johnius dussumieri Trichiurus lepturus Arius dussumieri Otolithes ruber Cynoglossus attenuatus Penaeus indicus Tripauchen microcephala Sepia faraonis Upeneus wittatus Penaeus monodon Pellona ditchela Tryssa setirostris Therapon theraps  Total  DATE:15/ 8/90 GEAR Total catch SPECIES  Thryssa vitrirostris CARIDEA Control of the Control of	n) Purpose oc Area code GearCond. (100 m Speed: 100 m Speed: 68.10 c CATCH/HOU weight num 59.00 c CATCH/HOU weight num 59.00 c CATCH/HOU weight num 69.00 c CATCH/HOU silver weight	POSITION: Late Londer: 3	S 1727  S 1727  E 3754  136.20  C SAMP.NO.  4  7  14  9  6  7  TATION: 124  S 1738  G E 3748  185.40  C SAMP.NO.  3  4  185.40  C SAMP.NO.  3  4  185.40  289  181  182  183  288  181  181  181  181	DATE:16/ 8/90 GEAR T start stop duration TIME :07:00:00 07:30:00 30 (mi LGG :6853.00 6855.00 10 (mi LGG :6855.00 10 6855.00 10 (mi DEPTH: 8 10 DEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 kg Total catch  SPECIES Arius dussumierii Thryssa vitrirostris CARIDEA Metapenaeus monoceros Johnius dussumieri Penaeus indicus Cynoglossus attenuatus Squilla sp. Polynemus sextarius Portunus sanguinolentus Otolithes ruber Sepia faraonis Therapon theraps PartyrCymus lepturus Tryssa setirostris Pellona ditchela Tripauchen microcephala Leiognathus elongatus Upeneus sulphureus Stolephorus commersonii Total  DATE:16/ 8/90 GEAR 7 EDEPTH: 11 DEPTH: 11 DEPTH: 11 DEPTH: 11 DEPTH: 11 DEPTH: 11 Towing dir: 60° Wire out Sorted: 6 kg Total catch  SPECIES Thryssa vitrirostris CARIDEA Arius dussumieri Johnius dussumieri Triptercomo nicus Upeneus sulphureus Trytperomo nicus Triptercomo nicus Tripteroson of the special properties Sulphureus Tripteroson of the special properties Sulphureus Tripteroson of the special properties Therapon theraps Cynoglossus attenuatus Penaeus monodon Penaeus indicus Alepenaeus monodon Penaeus findicus Alepenaeus and properties Scylla serrata	YPE: BT No:1 n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59 CATCH/i veight Particle	POSIT:    Code:   3	#10 HOUR:  #10 HOUR:  #10 HOUR:  #10 HOUR:  #10 HOUR:  #10 HOUR:  #14 06    #14 06    #15 8 99    #14 06    #16 0    #17 0    #17 0    #17 0    #18	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
TIME : 11:08:00 11:38:100 30 (mix LOG : 6694.20 695.80 1.60 FDEPTH: 10 12 BDEPTH: 10 12 Towing dir: 200° Wire out Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris CARIDEA John Sussumieri Totaliurus lepturus Arius dussumieri Otolithes ruber Cynoglosus attenuatus Pemadasys kaakan Squilla sp. Metapenaeus monoceros Penaeus indicus Tripauchen microcephala Sepia faraonis Upeneus vittatus Penaeus monodon Pellona ditchela Tryssa setirostris Therapon theraps  Total  DATE:15/8/90 GEAT TIME :13:33:00 14:03:00 30 (mix LOG :6712.40 6713.80 1.40 FDEPTH: 17 16 DDEPTH: 17 16 Towing dir: 360° Wire out Sorted: 8 Kg Total catch  SPECIES  Thryssa vitrirostris Cololithes ruber CARIDEA Johnius dussumieri Pomadasys maculatum Trichiurus lepturus Cynoglossus attenuatus Johnius amblycephalus Metapenaeus monoceros Stolephorus commersonii Sepia faraonis Tryssa setirostris Drepane longimanna Upeneus vittatus Penaeus monocoro Souline Polynemus sextarius Penaeus monocoro Penaeus indicus Penaeus suphnureus	n) Purpose of Area code GearCond. (available) (available) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	POSITION: Let Londer: 3	S 1727	DATE:16/ 8/90 GEAR T  start stop duration  TIME :07:00:00 07:30:00 30 (mid. LGG :6853.20 6855.00 1.00  FDEPTH: 8 10  BDEPTH: 8 10  BDEPTH: 8 10  Towing dir: 200° Wire out  Sorted: 7 Kg Total catch  SPECIES  Arius dussumierii  Thryssa vitrirostris  CARIDEA  Metapenaeus monoceros  Johnius dussumieri  Penaeus indicus  Cynoglossus attenuatus  Squilla sp.  Polynemus sextarius  Portunus sanguinolentus  Otolithes ruber  Sepia faraonis  Therapon theraps  Trichiurus lepturus  Tryssa setirostris  Pellona ditchela  Tripauchen microcephala  Leiognathus elongatus  Upeneus sulphureus  Stolephorus commersonii  Total  DATE:16/ 8/90 GEAR 7  EART Stop duration  TIME :08:28:00 08:58:00 30 (mid. LGG :6863.10 6864.00 1.70  FDEPTH: 11 11  BDEPTH: 11 11  BDEPTH: 11 11  Towing dir: 60° Wire out  Sorted: 6 Kg Total catch  SPECIES  Thryssa vitrirostris  CARIDEA  Arius dussumieri  Johnius dussumieri  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus sanguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus sanguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus sanguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus sanguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus sanguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus anguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus anguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus anguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus anguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus anguinolentus  Upeneus sulphureus  Tripterodon orbis  Otolithes ruber  Squilla sp.  Portunus anguinolentus  Upeneus sulphureus  Tripauchen microcephala  Hetapenaeus monoceros  Scylla semanus  Sepia faraonis  Gaza minuta	YPE: BT No:1 n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59 CATCH// Weight	FOSIT:  code: 3  e : 1 .code: 4 code: 4 code: 6 code: 6 code: 16 code: 19 code: 10 c	#10 Long  *10 Lo	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
TIME : 11:08:10 stop duration  TIME : 11:08:00 11:38:10 30 (min  LOG : 6694.20 6695.80 1.60  FDEPTH: 10 12  Towing dir: 200° Wire out  Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris  CARIDEA Johnius dussumieri  Trichiurus lepturus  Arius dussumieri  Otolithes ruber  Cynoglosus attenuatus  Pemadasys kaakan  Squilla sp.  Metapenaeus monoceros  Penaeus indicus  Tripauchen microcephala  Sepia (araonis  Upeneus vittatus  Penaeus monodola  Tryssa setirostris  Therapon theraps  Total  DATE: 15/8/90 GEAR T  TIME : 13:33:00 14:03:00 30 (min  LOG : 6712.40 6713.80 1.40  FDEPTH: 17 16  DDEPTH: 17 16  DDEPTH: 17 16  SPECIES  Thryssa vitrirostris  Otolithes ruber  CARIDEA Johnius dussumieri  Pomadasys maculatum  Trichiurus lepturus  Cotolithes ruber  CARIDEA Johnius dussumieri  Pomadasys maculatum  Trichiurus lepturus  Cotolithes ruber  CARIDEA Johnius dussumieri  Pomadasys maculatum  Trichiurus septurus  Cotolithes ruber  CARIDEA Johnius amblycephalus  Metapenaeus monoceros  Stolephorus commersonii  Sepia faraonis  Tryssa setirostris  Drepane longimanna  Upeneus vittatus  Squilla sp.  BOTILDAE  POJNemus sextarius  Penaeus monodon  Penaeus monodon  Penaeus monodon  Penaeus mulphureus  Cazza minuta  Metapenaeus stebbingi	n) Purpose of Area code GearCond. (100 m Speed: 100 m Speed: 68.10  CATCH/HOUNE (100 m Speed: 100 m Speed: 10	POSITION: Late   Londer: 3	S 1727     E 3754  136.20  C SAMP.NO.  4 7 7 TATION: 124     S 1738     G E 3748  185.40  C SAMP.NO.  3 4 10 12 12 12 10 12 12 11 13 13 288 11 11 13 13 288 11 11 13 13 14 15 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	DATE:16/ 8/90 GEAR T Start stop duration TIME :07:00:00 07:30:00 30 (mid Cos 6853.00 6855.00 1.0 (mid Cos 6853.00 6855.00 1.0 (mid Cos 6853.00 6855.00 1.0 (mid Cos 6855.00 1.0 (	YPE: BT No:1 n) Purpose Area cod GearCond Validity: 100 m Spe: 30.59 CATCH// Weight: 21.96 S.60 S.60 S.60 S.66 S.66 S.66 S.66 S.6	FOSIT:  code: 3  ie : 1  .code: 4  code: 4  code: 4  code: 6  code: 16  2866  486  60  20  16  32  48  48  60  20  16  32  68  17  18  19  10  10  10  10  10  10  10  10  10	#10 Long  #10 HOUR:  OF TOT. C  35,89 14,06 9,15 8,92 8,76 8,43 3,27 1,11 1,67 1,67 1,67 1,67 1,67 1,67 1,6	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704
TIME : 11:08:10 stop duration  TIME : 11:08:00 11:38:10 30 (min  LOG : 6694.20 6695.80 1.60  FDEPTH: 10 12  Towing dir: 200° Wire out  Sorted: 9 Kg Total catch  SPECIES  Thryssa vitrirostris  CARIDEA Johnius dussumieri  Trichiurus lepturus  Arius dussumieri  Otolithes ruber  Cynoglosus attenuatus  Pemadasys kaakan  Squilla sp.  Metapenaeus monoceros  Penaeus indicus  Tripauchen microcephala  Sepia (araonis  Upeneus vittatus  Penaeus monodola  Tryssa setirostris  Therapon theraps  Total  DATE: 15/8/90 GEAR T  TIME : 13:33:00 14:03:00 30 (min  LOG : 6712.40 6713.80 1.40  FDEPTH: 17 16  DDEPTH: 17 16  DDEPTH: 17 16  SPECIES  Thryssa vitrirostris  Otolithes ruber  CARIDEA Johnius dussumieri  Pomadasys maculatum  Trichiurus lepturus  Cotolithes ruber  CARIDEA Johnius dussumieri  Pomadasys maculatum  Trichiurus lepturus  Cotolithes ruber  CARIDEA Johnius dussumieri  Pomadasys maculatum  Trichiurus septurus  Cotolithes ruber  CARIDEA Johnius amblycephalus  Metapenaeus monoceros  Stolephorus commersonii  Sepia faraonis  Tryssa setirostris  Drepane longimanna  Upeneus vittatus  Squilla sp.  BOTILDAE  POJNemus sextarius  Penaeus monodon  Penaeus monodon  Penaeus monodon  Penaeus mulphureus  Cazza minuta  Metapenaeus stebbingi	n) Purpose of Area code GearCond. (100 m Speed: 100 m Speed: 68.10  CATCH/HOUNE (100 m Speed: 100 m Speed: 10	POSITION: Late   Londer: 3	S 1727     E 3754  136.20  C SAMP.NO.  4 7 7 TATION: 124     S 1738     G E 3748  185.40  C SAMP.NO.  3 4 10 12 12 12 10 12 12 11 13 13 288 11 11 13 13 288 11 11 13 13 14 15 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	DATE:16/ 8/90 GEAR T Stop duration TIME :07:00:00 07:30:00 30 (mi. LOG :6853.00 de55.00 1.80 FDEPTH: 8 10 BDEPTH: 8 10 BDEPTH: 8 10 Towing dir: 200° Wire out Sorted: 7 Kg Total catch SPECIES  Arius dussumierii Thryssa vitrirostris CRIDPA dusumieri Penaeus Indicus Cynoglossus attenuatus Squilla sp. Polynemus sanguinolentus Otolithes ruber Sepia faraonis Therapon theraps PLATYCEPHALIDAE Trichiurus leptrus Tryssa setirostris Pellona ditchela Tripsuchem microcephal Leiognathus elongatus Upeneus sulphureus Stolephorus commersonii Total  DATE:16/ 8/90 GEAR T STALL CONTROL C	YPE: BT No:1  n) Purpose Area cod GearCond Validity: 100 m Spe : 30.59  CATCH/i  weight f 21.96 5.60 5.46 5.16 2.00 1.28 1.00 0.96 0.68 0.40 0.40 0.40 0.36 0.20 0.08 61.18  TYPE: BT No:  "YPE: BT No:  "YPE: BT No:  "YPE: BT No:  "Area cod GearCom Validit: 100 m Sp :: 73.23  CATCH/i  weight f 2.00 2.00 2.10 2.10 2.10 2.20 2.20 2.20	FOSIT:  code: 3  ie : 1  .code: 4  code: 4  code: 4  code: 6  code: 16  2866  486  60  20  16  32  68  18  19  10  10  10  10  10  10  10  10  10	#10 HOUR:	S 1758 E 3706  61.18  61.18  C SAMP.NO.  290  291  ATION: 128 S 1804 E 3704

		200120 CM		PI	ROJECT STATION: 133
start stop durati TIME :10:19:00 10:49:00 30	ion (min) Purpose code:	PROJECT STATION: 129 SITION:Lat S 1803 Long E 3716	start stop duration TIME :20:00:00 20:30:00 30 (mi LOG :6948.30 6949.90 1.60	n) Purpose code: 1 Area code : 1	FION:Lat S 1813 Long E 3711
FDEPTH: 36 36 BDEPTH: 36 36	Area code : GearCond.code: Validity code:	1	FDEPTH: 0 0 BDEPTH: 28 26 Towing dir: 20 Wire out	GearCond.code: Validity code: : 100 m Speed: 32 km	n*10
Towing dir: 30° Wire  Sorted: 4 Kg Total ca	out: 200 m Speed: 19		Sorted: Kg Total catch		/HOUR: 290.00
sorted: 4 kg Total C	160n: 22.43 CATC	:H/HOUR: 44.86	SPECIES	CATCH/HOUR •	OF TOT. C SAMP.NO.
SPECI ES	weight numbers	N OF TOT. C SAMP.NO.	Sphyrna zygaena	weight numbers 200.00 2	68.97
Metapenaeus monoceros Cynoglossus attenuatus Trichiurus lepturus	8.40 542 6.72 264 4.80 128	18.72 14.98 10.70	Carcharhinus limbatus Pomadasys maculatum	32.00 Z 12.18 126	11.03 4.20
Johnius amblycephalus Thryssa vitrirostris	4.40 208 4.08 400	9.81 9.09	Pomadasys kaakan Pellona ditchela Parastromateus niger	10.10 10 9.76 514 8.80 6	3.48 3.37 291 3.03
Pellona ditchela Portunus sanguinolentus	3.28 160 2.80 16	7.31 6.24	Secutor insidiator Dussumieria acuta	3.36 236 2.74 154	1.16
Psettodes erumei Upeneus sulphureus Squilla sp.	2.56 8 1.68 136 0.96 64	5.71 3.74 2.14	Leiognathus equulus Trichiurus lepturus	2.24 46 1.56 22	0.77 0.54
BOTHIDAE Sphyraena flavicauda	0.80 80 0.64 8	1.78	Sphyraena flavicauda Carangoides malabaricus Stolephorus heterolobus	1.30 22 1.28 18 0.84 310	0.45 0.44 0.29 292
Therapon theraps Penaeus indicus	0.56 56 0.46 12	1.25	Stolephorus punctifer Thryssa vitrirostris	0.78 234 0.62 54	0.27 293 0.21
APOGONIDAE Polynemus sextarius Sepia faraonis	0.40 64 0.40 72 0.40 16	0.89 0.89 0.89	Carangoides ferdau Therapon theraps Sardinella albella	0.32 8 0.30 4	0.11 0.10
PLATYCEPHALIDAE Upeneus vittatus	0.40 32 0.40 32	0.89 0.89	Priacanthus hamrur SCIAENIDAE	0.24 12 0.20 4 0.18 2	0.08 0.07 0.06
Leiognathus equulus Pomadasys maculatum Penacus semisulcatus	0.24 24 0.16 8 0.12 4	0.53 0.36 0.27	Gerres filamentosus LOLIGINIDAE	0.14 2 0.12 16	0.05
S N R I M P S Secutor insidiator	0.08 0.08 8	0.18 0.18	Lagocephalus sp Upeneus vittatus Tryssa setirostris	0.10 2 0.08 4 0.06 2	0.03 0.03 0.02
PENAEIDAE Total	0.04 24 44.86	99.99	Ariomma indica Leiognathus elongatus	0.04 2 0.02 16	0.01
	44.00	,,,,,	Total	289.36	99.76
DATE: 16/ 8/90 CD	an munna am u-at ana	PROJECT STATION: 130			
DATE:16/ 8/90 GE start stop durat: TIME :11:58:00 12:31:00 33	ion	Long E 3723			ROJECT STATION: 134 TION:Lat S 1832
LOG :6884.50 6886.00 1.50 FDEPTH: 39 34	Area code : GearCond.code:	ĭ	start stop duration TIME :06:24:00 06:56:00 32 (mi LOG :7040.90 7042.50 1.70	n) Purpose code: 3 Area code : 1	Long E 3642
BDEPTH: 39 34 Towing dir: 20° Wire	Validity code: out: 200 m Speed: 30	kn*10	FDEPTH: 15 16 BDEPTH: 15 16	GearCond.code: Validity code:	
Sorted: 11 Kg Total ca	atch: 214.33 CATO	:H/HOUR: 389.69	Towing dir: 50° Wire out  Sorted: 13 Kg Total catch	: 100 m Speed: 32 ki : 93.00 CATCH	n*10 /HOUR: 174.38
SPECIES		OF TOT. C SAMP.NO.	-		
Pellona ditchela Upeneus vittatus	weight numbers 170.73 12704 72.36 2724	43.81 292 18.57 293	SPECIES Thryssa vitrirostris	CATCH/HOUR Weight numbers 51.28 12512	OF TOT. C SAMP.NO. 29.41 294
Pomadasys maculatum Therapon theraps	26.73 569 25.09 502	6.86 6.44	Johnius dussumieri Pomadasys kaakan	38.01 12656 27.86 51	21.80 15.98
Leiognathus equulus Trichiurus lepturus Thryssa vitrirostris	17.09 469 11.09 302 8.73 669	4.39 2.85 2.24	Otolithes ruber Trichiurus lepturus CARIDEA	17.63 394 13.88 189 8.23 10974	10.11 7.96
Sphyraena flavicauda Penaeus japonicus	8.36 100 7.27 129	2.15 1.87	CARIDEA Metapenaeus monoceros Johnius amblycephalus	8.23 10974 4.09 266 1.88 13	4.72 2.35 1.08
Priacanthus hamrur Pomadasys kaakan Portunus sanguinolentus	6.73 33 5.36 33 5.09 33	1.73 1.38 1.31	Sepia faraonis Therapon theraps	1.31 189 1.31 13	0.75 0.75
Polynemus sextarius Gazza minuta	5.00 267 5.00 100	1.28	Pomadasys maculatum Pellona ditchela Tryssa setirostris	1.28 38 1.28 114 0.75 13	0.73 0.73 0.43
Ariomma indica Secutor insidiator Therapon jarbua	3.27 33 3.27 200	0.84 0.84	Leiognathus elongatus Hilsa kelee	0.66 443 0.66 13	0.38 0.38
Saurida undosquamis Trachinocephalus myops	3.27 65 2.73 33 1.64 33	0.84 0.70 0.42	Polynemus sextarius Cynoglossus attenuatus Gazza minuta	0.66 13 0.66 128 0.66 139	0.38 0.38 0.38
Penaeus semisulcatus	0.87 18	0.22	Penaeus indicus Upeneus sulphureus	0.62 24 0.56 24	0.36 0.32
Total	389.68	100.02	Squilla sp. Penaeus japonicus Stolephorus commersonii	0.38 88 0.06 8 0.06 51	0.22 0.03 0.03
		PROJECT STATION: 131 SITION:Lat S 1818	BOTHIDAE	0.00	
start stop durat TIME :15:05:00 15:35:00 30 LOG :6913.30 6915.20 1.70	(min) Purpose code:	· Long E 3702	Total	173.77	99.66
FDEPTH: 22 22 BDEPTH: 22 22	GearCond.code: Validity code:				ROJECT STATION: 135
Towing dir: 232° Wire Sorted: Kg Total c	out: 150 m Speed: 33	cn/Hour: 31.52	DATE:17/ 8/90 GEAR T start stop duration TIME :10:30:00 11:00:00 30 (mi		TION:Lat S 1845 Long E 3705
SPECIES			LOG :7072.60 7074.50 1.90 FDEPTH: 42 40	Area code : 1 GearCond.code:	
Trichiurus lepturus	CATCH/HOUR weight numbers 12.56 254	% OF TOT. C SAMP.NO. 39.85	BDEPTH: 42 40 Towing dir: 210 Wire out	Validity code: : 250 m Speed: 38 km	n*10
Scomberomorus plurilineatus Pellona ditchela	8.16 4 2.70 150	25.89 8.57	Sorted: 12 Kg Total catch	: 89.00 CATCH	/HOUR: 178.00
Stolephorus commersonii Upeneus vittatus Pomadasys kaakan	1.60 1066 1.50 62 1.20 2	5.08 294 4.76 3.81	SPECIES		OF TOT. C SAMP.NO.
Thryssa vitrirostris Penaeus japonicus	0.94 118 0.70 18	2.98 2.22	Aprion virescens Leiognathus elongatus	weight numbers 46.80 6 42.78 7502	26.29 24.03 295
Upeneus sulphureus Psettodes erumei Sepia faraonis	0.60 34 0.32 2 0.20 12	1.90 1.02 0.63	Lethrinus microdon Abalistes stellatus	32.80 4 19.40 20	18.43 10.90
Alepes djeddaba Secutor insidiator	0.20 12 0.20 2 0.20 10	0.63 0.63	Epinephelus malabaricus Ostracion lentiginosa	18.40 2	10.34 3.15
			Lactoria cornuta	5.60 6 4.20 20	
Sphyraena flavicauda Therapon theraps	0.16 2 0.10 2	0.51 0.32	Lactoria cornuta Upeneus bensasi Lethrinus variegatus	4.20 20 3.28 132 1.90 86	2.36 1.84 1.07
Sphyraena flavicauda	0.16 2		Lactoria cornuta Upeneus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp.	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20	2.36 1.84 1.07 0.92 0.37
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops	0.16 2 0.10 2 0.10 4 0.10 2	0.32 0.32 0.32 0.25 0.19	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6	2.36 1.84 1.07 0.92 0.37 0.18
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumieria acuta Metapenaeus monoceros	0.16 2 0.10 2 0.10 4 0.10 2 0.08 2 0.06 6	0.32 0.32 0.32 0.25 0.19	Lactoria cornuta Uponeus bensasi Lethrinus wariegatus Sepia prashadi Parupeneus sp. Decapterus russelli	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24	2.36 1.84 1.07 0.92 0.37
Sphyraena flavicauda Therappon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius	0.16 2 0.10 2 0.10 4 0.10 2 0.08 2 0.06 6 0.04 2	0.32 0.32 0.32 0.25 0.19 0.13	Lactoria Cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIOAE Total	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6	2.36 1.84 1.07 0.92 0.37 0.18
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius Total  DATE:16/ 8/90 start stop durat	0.16 2 0.10 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2 	0.32 0.32 0.32 0.25 0.19 0.13 100.01	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIOAE  Total  DATE:17/ 8/90 Start stop duration	4.20 20 3.28 132 1.90 86 1.64 6 0.65 20 0.32 24 0.20 6	2.36 1.84 1.07 0.92 0.37 0.18 0.11
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/ 8/90 start stop durat TIME :16:30:00 16:55:00 22 LOG :6923.50 6524.80 1,70	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2 31.52  AR TYPE: BT No:1 Po ion (min) Purpose code:	0.32 0.32 0.32 0.25 0.19 0.13 100.01 PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 start stop duration TIME :15:34:00 16:06:00 32 (mi LOG :7108.70 7110.40 1.50 FDEPTII: 40 138	4.20 20 3.28 132 1.90 86 1.64 6 0.65 20 0.32 24 0.20 6	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.99 ROJECT STATION: 136 TION:Lat S 1852 Long E 3658
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/8/90  start stop durat TIME :16:30:00 16:57:00 27 LOG :6923.50 6924.80 1.70 FDEPTH: 12 10	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2	0.32 0.32 0.32 0.25 0.19 0.13 100.01 PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 GEAR T start stop duration TIME :15:134:00 16:06:00 32 (mi LOG :7108.70 7110.40 1.50 FDEPTH: 40 38 BDEPTH: 40 38 BDEPTH: 40 38	4.20 20 3.28 132 1.90 86 1.64 6 0.65 20 0.32 24 0.20 6	2.36 1.84 1.07 0.92 0.37 0.18 0.11  99.99  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/8/90  start stop durat TIME :16:30:00 16:57:00 27 LOG :6923.50 6924.80 1.70 FDEPTH: 12 10	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2 31.52  AR TYPE: BT No:1 PO ion (min) Purpose code: Area code: Validity code: tout: 100 m Speed: 29	0.32 0.32 0.32 0.25 0.19 0.13 100.01 PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 GEAR T start stop duration TIME :15:134:00 16:06:00 32 (mi LOG :7108.70 7110.40 1.50 FDEPTH: 40 38 BDEPTH: 40 38 BDEPTH: 40 38	4.20 20 3.28 132 1.90 86 1.64 6 0.65 20 0.32 24 0.20 6  177.98  PYPE: BT No:1 POSI' n) Purpose code: 3 Area code: 1 GearCond.code: Validity code: 21 250 m Speed: 32 ki	2.36 1.84 1.07 0.92 0.37 0.18 0.11  99.99  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/8/90 GE start stop durat TIME :16:30:00 16:57:00 27 LOG :6923.50 6924.80 1.70 FDEPTH: 12 10 BDEPTH: 12 10 Towing dir: 20* Wire	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2	0.32 0.32 0.32 0.25 0.19 0.13 100.01 PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654 3	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 GEAR T start stop duration TIME :15:134:00 16:06:00 32 (mi LOG :7108.70 7110.40 1.50 FDEPTH: 40 38 BDEPTH: 40 38 Towing dir: 10* Wire out	4.20 20 3.28 132 1.90 86 1.64 6 0.65 20 0.32 24 0.20 6  177.98  TYPE: BT No:1 POSI n) Purpose code: 3 Area code: 1 GearCond.code: Validity code: 21 150 m Speed: 32 k 1: 63.00 CATCH.	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.39  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/8/90 GE start stop durat TIME:16:30:00 16:57:00 27 LOG :6923.50 6924.80 1.70 FDEPTH: 12 10 BDEPTH: 12 10 Towing dir: 20 Wire Sorted: 9 Kg Total c  SPECIES Johnius dussumieri	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2	0.32 0.32 0.32 0.25 0.19 0.13 100.01 PROJECT STATION: 132 SITION:Lat \$ 1816 Long E 3654 3 1 kn*10 CII/HOUR: 140.71	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 Start stop duration Time :15:34:00 16:06:00 32 (mi LOG :7108.70 7110.40 1.50 FDEPTH: 40 38 Towing dir: 10* Wire out Sorted: 20 %g Total catch  SPECIES  Scomberomorus commersoni Decapterus russelli	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POST: n) Purpose code: 3 Area code : 1 GearCond.code: Validity code: : 250 m Speed: 32 k: : 63.00 CATCH.	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.99  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658  A*10 /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumieria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/ 8/90 GE start stop durat TIME:16:30:00 16:57:00 27 LCG :6923.50 6924.80 1.70 FDEPTH: 12 10 DDEPTH: 12 10 Towing dir: 20 Wire Sorted: 9 Kg Total c  SPECIES Johnius dussumieri CARIDEA Thryssa vitirostris Pomadasys kaakan	0.16 2 0.10 4 0.10 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2	0.32 0.32 0.32 0.25 0.19 0.13 100.01 PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654 3 1 kn*10 CII/HOUR: 140.71	Lactoria cornuta Upeneus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIOAE  Total  DATE:17/ 8/90	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POST: n) Purpose code: 3 Area code : 1 GearCond.code: Validity code: : 250 m Speed: 32 k:  CATCH/HOUR weight numbers 61.22 13 21.81 666 16.91 797 5.36 75	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.99  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658  A*10  /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297 14.31 296 4.54
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumieria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/ 8/90 GE start stop durat TIME:16:30:00 16:57:00 27 LOG :6923.50 6524.80 1.70 FDEPTH: 12 10 DDEPTH: 12 10 Towing dir: 20* Wire Sorted: 9 Kg Total c  SPECIES Johnius dussumieri CARIDEA Thryssa vitrirostris Pomadasys kaakan Trichiurus lepturus Tryssa setirostris	O.16 2 0.10 4 0.10 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2	0.32 0.32 0.32 0.32 0.25 0.19 0.13 100.01 PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654 3 1 kn*10 CII/HOUR: 140.71 & OF TOT. C SAMP.NO. 32.22 14.21 11.06 10.00 7.38 4.31	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/8/90 GEAR T start stop duration TIME :15:14:00 16:06:00 12 (mi Log :7108.70 7110.40 1.50 EDEPTH: 40 38 EDEPTH: 40 38 EDEPTH: 40 38 Towing dir: 10 Wire out Sorted: 20 Kg Total catch  SPECIES  Scomberomorus commersoni Decapterus russelli Uponeus bensasi Nemipterus delagoae Rastrelliger kanagurta Loligo duvauceli Decapterus macrosoma	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POST  n) Purpose code: 3 Area code : 1 GearCond.code: 1 GearCond.code: 2 250 m Speed: 32 k : 63.00 CATCH.  CATCH/HOUR weight numbers 61.22 1 21.21 666 61.22 666 61.22 675 4.24 69 3.49 122 1.35 23	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.99  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658  n*10 /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297 14.31 296
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/ 8/90  GE  DATE:16/ 8/90  GE  Start stop durat TIME:16:30:00 16:57:00 27  LOG :5923.50 5924.80 1.70  FDEPTH: 12 10  BUEPTH: 12 10  Towing dir: 20 Wire  Sorted: 9 Kg Total c  SPECIES  Johnius dussumieri CARIDEA Thryssa vitrirostris Pomadasys kaakan Trichiurus lepturus Tryssa setirostris Metapenaeus monoceros Otolithes ruber Upeneus sulphureus	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2  31.52  AR TYPE: BT No:1 PO ion (min) Purpose code: Area code: GearCond.code: Validity code: Out: 100 m Speed: 29 eatch: 63.32 CAT  CATCII/HOUR weight numbers 45.33 328 20.00 13333 15.56 2727 14.07 16 10.38 222	0.32 0.32 0.32 0.25 0.19 0.13 100.01  PROJECT STATION: 132 SITION:Lat \$ 1816 Long E 3654 3 1 kn*10 CII/HOUR: 140.71 • OF TOT. C SAMP.NO. 32.22 14.21 11.06 10.00 7.38	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/8/90  CEAR T  start stop duration TIME:15:34:00 16:06:00 32 (as LOC 17108.70 7110.40 1.50 FDEPTH: 40 36 DDEPTH: 40 36 Towing dir: 10 Wire out Sorted: 20 Kg Total catch  SPECIES  Scomberomorus commersoni Decapterus russelli Upeneus bensasi Nemiptorus delagoae Rastrelliger kanagurta Loligo duvauceli Decapterus macrosoma Herklotsychthis quadrimaculatu Sphyraen novae hollandia	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POST  n) Purpose code: 3 Area code : 1 GearCond.code: 20 20 21 21 20 21 21 20 21 21 21 21 21 21 21 21 21 21 21 21 21 2	2.36 1.84 1.07 0.92 0.37 0.18 0.11  99.99  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658  n*10 /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297 14.31 296 4.54 1.59 2.95 1.14 1.08 0.60
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/ 8/90 GE start stop durat TIME:16:30:00 16:57:00 27 LOG:5923.50 6924.80 1.70 FDEPTH: 12 10 BDEPTH: 12 10 Towing dir: 20 Wire Sorted: 9 Kg Total c  SPECIES Johnius dussumieri CARIDEA Thryssa vitriostris Pomadasys kaakan Trichiurus lepturus Tryssa setirostris Metapenaeus monoceros Otolithes ruber Upeneus sulphureus Therapon theraps Penaeus indicus	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2  31.52   CAR TYPE: BT No:1 PO ion (min) Purpose code: Area code: Garcond.code: Validity code: Out: 100 m Speed: 29 eatch: 63,32 CAT  CATCH/HOUR weight numbers 45,33 3238 25,56 1333 15,56 2727 14,07 10,38 222 4,124 300 3,71 429 3,40 118 2,67 60 2,51 104	0.32 0.32 0.32 0.32 0.32 0.25 0.19 0.13  100.01  PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654 3 1  kn*10 CH/HOUR: 140.71  * OF TOT. C SAMP.NO. 32.22 14.21 11.06 10.00 7.39 4.31 3.10 2.64 2.42 1.90 1.78	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 GEAR T	4.20 20 3.28 132 1.90 86 1.64 6 0.65 20 0.32 24 0.20 6  177.98  TYPE: BT No:1 POSI' n) Purpose code: 3 Area code 1 GearCond.code: Validity code: Validity code: Validity code: 1  CANCH/HOUR 4  weight number 5 1.22 21.81 666 16.91 797 5.36 75 4.24 69 3.49 122 1.35 23 1.28 47	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99,99  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658  A*10  /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 14.54 297 14.51 296 14.51 296 15.59 2.55 1.14 1.08
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/8/90 GE start stop durat TIME:16:30:00 16:57:00 27 LOG :6922.50 6924.80 1.70 FDEPTH: 12 10 BDEPTH: 12 10 Towing dir: 20 Wire Sorted: 9 Kg Total c  SPECIES  Johnius dussumieri CARIDEA Thryssa vitrirostris Pomadasys kaakan Trichiurus lepturus Tryssa setirostris Metapenaeus monoceros Otolithes Tuber User Start St	O.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2  31.52  AR TYPE: BT No:1 PO ion (min) Purpose code: GearCond.code: volidity code: volidity code: volidity code: volidity code: code: CATCH/HOUR weight numbers 45.33 2CAT  CATCH/HOUR weight numbers 45.33 3238 20.00 13333 15.56 2771 14.7 16 10.38 222 4.24 300 3.71 429 3.40 118 2.67 60	0.32 0.32 0.32 0.32 0.25 0.19 0.13 100.01 PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654 3 1 kn*10 CHI/HOUR: 140.71 • OF TOT. C SAMP.NO. 12.22 14.21 11.06 10.00 7.28 4.31 3.01 2.64 2.42 1.90	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/8/90  CEAR T  Start stop duration TIME:15:14:00 16:06:00 32 (at LOC:17:14:00 16:06:00 32 (at LOC:17:108.70 710.40 1.50 FDEPTH: 40 36 DDEPTH: 40 36 Towing dir: 10 Wire out Sorted: 20 Kg Total catch  SPECIES  Scomberomorus commersoni Decapterus russelli Upeneus bensasi Nemiptorus delagose Rastrelliger kanagurta Loligo duvauceli Decapterus macrosoma Herklotsychthis quadrimaculatu Sphyraena novae hollandia Saurida undosquamis Carangoides ferdau	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POST  n) Purpose code: 3 Area code : 1 GearCond.code: 1 250 m Speed: 32 k : 63.00 CATCH.  CATCH/HOUR weight numbers 61.22 13 21.81 666 16.91 797 4.24 69 21.49 122 1.35 23 1.49 122 1.35 23 1.49 122 1.35 23 1.20 47 0.71 9 0.58 11 0.32 6	2.36 1.84 1.07 0.92 0.37 0.18 0.11  99.99  ROJECT STATION: 136 TION:Lat S 1852 Long E 3658  n*10 /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297 14.31 296 4.54 1.59 2.59 1.14 0.60 0.49 0.27
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/8/90 GE start stop durat TIME:16:30:00 16:57:00 27 LOG :6922.30 6924.80 1.70 FDEPTH: 12 10 BDEPTH: 12 10 Towing dir: 20 Wire Sorted: 9 Kg Total c  SPECIES  Johnius dussumieri CARIDEA Thryssa vitriostris Pomadasys kaakan Trichiurus lepturus Tryssa setirostris Metapenaeus monoceros Otolithes ruber Uncolosus attenuatus Squilla sp. ANGUILLIFORMES Megalaspis cordyla Pellona ditchela	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.08 2 0.06 6 0.04 2  31.52  AR TYPE: BT No:1 PO ion (min) Purpose code: Area code: Validity code: Validit	0.32 0.32 0.32 0.32 0.32 0.32 0.25 0.19 0.13  100.01  PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654 3 1  kn*10 CII/HOUR: 140.71  • OF TOT. C SAMP.NO.  32.22 14.21 11.06 10.00 7.30 4.31 3.01 2.42 1.78 1.69 1.58 1.06 0.84 0.74	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 GEAR T start stop duration TIME :15:34:00 16:06:00 32 [si LOG :7108.70 7110.40 1.50 PDEPTH: 40 38 DDEPTH: 40 38 Towing dir: 10 Wire out Sorted: 20 Kg Total catch  SPECIES  Scomberomorus commersoni Decapterus russelli Uponeus bensasi Neptrus delagoae Raipretus macrosona Herklotsychthis quadrimaculatu Sphyracan novae hollandia Saurida undosquamis Carangoides ferdau Alepes djeddaba	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POSI  n) Purpose code: 3 Area code : 1 GearCond.code: 1 CATCH/HOUR & Weight numbers 61.22 13.6 12.8 666 16.91 79.5 4.24 63.9 122 1.35 43.9 122 1.35	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.99  ROJECT STATION: 136 TION: Lat S 1852 Long E 3658  n*10 /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297 14.31 296 4.54 3.59 2.95 11.16 11.68 0.60 0.49 0.49 0.47 0.27 0.24
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumieria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/ 8/90  start stop durat TIME:16:30:00 16:57:00 27 LOG :6923.50 6924.80 1.70 FDEPTH: 12 10 DDEPTH: 12 10 Towing dir: 20 Wire Sorted: 9 Kg Total c  SPECIES  Johnius dussumieri CARIDEA Thryssa vitrirostris Pomadasys kaakan Trichiurus lepturus Tryssa setirostris Metapenaeus monoceros Otolithes ruber Upeneus sulphureus Therapon theraps Penaeus indicus Cynoglossus attenuatus SMGUILLIPORMES Megalaspis cordyla Pellona ditchela Hilsa macrura Sepia faraonis Arius dussumierii	O.16 2 0.10 4 0.10 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2	0.32 0.32 0.32 0.32 0.32 0.25 0.19 0.13  100.01  PROJECT STATION: 132 SITION:Lat S 1816 Long E 3654 3 1  kn*10 CIII/HOUR: 140.71  OF TOT. C SAMP.NO. 32.22 14.21 11.06 10.00 7.38 4.31 3.01 3.01 3.01 1.69 1.69 1.58 1.06 0.84	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 GEAR T start stop duration TIME :15:34:00 16:06:00 32 [si LOG :7108.70 7110.40 1.50 PDEPTH: 40 38 DDEPTH: 40 38 Towing dir: 10 Wire out Sorted: 20 Kg Total catch  SPECIES  Scomberomorus commersoni Decapterus russelli Uponeus bensasi Neptrus delagoae Raipretus macrosona Herklotsychthis quadrimaculatu Sphyracan novae hollandia Saurida undosquamis Carangoides ferdau Alepes djeddaba	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POSI  n) Purpose code: 3 Area code : 1 GearCond.code: 1 CATCH/HOUR & Weight numbers 61.22 13.6 12.8 666 16.91 79.5 4.24 63.9 122 1.35 43.9 122 1.35	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.99  ROJECT STATION: 136 TION: Lat S 1852 Long E 3658  n*10 /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297 14.31 296 4.54 3.59 2.95 11.16 11.68 0.60 0.49 0.49 0.47 0.27 0.24
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumieria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/8/90  start stop durat TIME:16:30:00 16:57:00 27  LGG:6923.50 6524.80 1.70 FDEPTH: 12 10  DEPTH: 12 10  Towing dir: 20 Wire  Sorted: 9 Kg Total c  SPECIES  Johnius dussumieri CARIDEA Thryssa vitrirostris Pomadasys kaakan Trichiurus lepturus Tryssa setirostris Metapenaeus monoceros Otolithes ruber Upeneus sulphureus Therapon theraps Penaeus indicus Cynoglossus attenuatus Squilla sp. AMGUILITORMES Megalaspis cordyla Hilas macrura Sepia faraonis Arius dussumierii Leiognathus elongatus PLATYCEPHINLIDAE	O.16 2 0.10 2 0.10 4 0.10 2 0.08 2 0.08 2 0.06 6 0.04 2	0.32 0.32 0.32 0.32 0.32 0.32 0.25 0.19 0.13  100.01   EROJECT STATION: 132 SITION:Lat S 1816 Long E 3654  1  kn*10 CII/HOUR: 140.71  & OF TOT. C SAMP.NO. 32.22 14.21 11.06 10.00 7.38 4.31 3.01 2.64 2.42 1.99 1.78 1.79 1.79 1.79 1.58 1.06 0.84 0.74 0.63 0.52 0.52 0.52 0.52 0.52 0.43	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 GEAR T start stop duration TIME :15:34:00 16:06:00 32 [si LOG :7108.70 7110.40 1.50 PDEPTH: 40 38 DDEPTH: 40 38 Towing dir: 10 Wire out Sorted: 20 Kg Total catch  SPECIES  Scomberomorus commersoni Decapterus russelli Uponeus bensasi Neptrus delagoae Raipretus macrosona Herklotsychthis quadrimaculatu Sphyracan novae hollandia Saurida undosquamis Carangoides ferdau Alepes djeddaba	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POSI  n) Purpose code: 3 Area code : 1 GearCond.code: 1 CATCH/HOUR & Weight numbers 61.22 13.6 12.8 666 16.91 79.5 4.24 63.9 122 1.35 43.9 122 1.35	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.99  ROJECT STATION: 136 TION: Lat S 1852 Long E 3658  n*10 /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297 14.31 296 4.54 3.59 2.95 11.16 11.68 0.60 0.49 0.49 0.47 0.27 0.24
Sphyraena flavicauda Therapon theraps Pomadasys maculatum Trachinocephalus myops Dussumteria acuta Metapenaeus monoceros Polynemus sextarius  Total  DATE:16/8/90 GE start stop durat TIME:16:30:00 16:57:00 27 LGG:5923.50 6924.80 1.70 FDEPTH: 12 10 10 Towing dir: 20 Wire Sorted: 9 Kg Total c  SPECIES Johnius dussumieri CARIDEA Thyssa vitriostris Pomadasys kaakan Trichiurus lepturus Tryssa setirostrits Metapenaeus monoceros Otolithes ruber Upeneus zulphureus Therapon theraps Penaeus zulphureus Therapon theraps Penaeus zulphureus Therapon theraps Penaeus zulphureus ANGUILLIPORMES Megalaspis cordyla Pellona ditchela Hilsa macrura Sepia faraonis Arius dussumierii Leiognathus elongatus	0.16 2 0.10 4 0.10 2 0.08 2 0.08 2 0.08 2 0.06 6 0.04 2  31.52  AR TYPE: BT No:1 PO ion (min) Purpose code: Area code: GearCond.code: Validity code: Validity code: Out: 100 m Speed: 29 atch: 63.32 CAT  CATCII/HOUR weight numbers 45.33 3238 20.00 13333 15.56 2727 14.07 16 10.38 222 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 282 6.07 889 6.073 607 0.89 447 0.73 89 0.73 607	0.32 0.32 0.32 0.32 0.32 0.32 0.32 0.32	Lactoria cornuta Uponeus bensasi Lethrinus variegatus Sepia prashadi Parupeneus sp. Decapterus russelli LOLIGINIDAE  Total  DATE:17/ 8/90 GEAR T start stop duration TIME :15:34:00 16:06:00 32 [si LOG :7108.70 7110.40 1.50 PDEPTH: 40 38 DDEPTH: 40 38 Towing dir: 10 Wire out Sorted: 20 Kg Total catch  SPECIES  Scomberomorus commersoni Decapterus russelli Uponeus bensasi Neptrus delagoae Raipretus macrosona Herklotsychthis quadrimaculatu Sphyracan novae hollandia Saurida undosquamis Carangoides ferdau Alepes djeddaba	4.20 20 3.28 132 1.90 86 1.64 6 0.66 20 0.32 24 0.20 6  1777.98  TYPE: BT No:1 POSI  n) Purpose code: 3 Area code : 1 GearCond.code: 1 CATCH/HOUR & Weight numbers 61.22 13.6 12.8 666 16.91 79.5 4.24 63.9 122 1.35 43.9 122 1.35	2.36 1.84 1.07 0.92 0.37 0.18 0.11 99.99  ROJECT STATION: 136 TION: Lat S 1852 Long E 3658  n*10 /HOUR: 118.13  OF TOT. C SAMP.NO. 51.82 298 18.46 297 14.31 296 4.54 3.59 2.95 11.16 11.68 0.60 0.49 0.49 0.47 0.27 0.24

### start   stop   duvati ### 106:40:00 07:10:00   30 ### 206:40:00 07:10:00   30 ### 206:40:00   7244.40   1,70 ### 15 ### 15 #	R TYPE: BT No:1 POSITion (min) Furpose code: 3 Area code: 1 GearCond.code: Validity code: out: 100 m Speed: 36 kr		DATE:18/ 8/90 GEAR GEAR STATE STOP duration TIME:14:25:00 14:55:00 30 (# LOG :7302.10 7303.90 1.80 FDEPTH: 25 25	PROJECT STATION: 141 TYPE: BT No:1 POSITION:Let S 1852 In) Purpose code: 1 Area code: 1 GearCond.code:  'Validity code:  ti 150 m Speed: 36 kn*10
Sorted: 9 Kg Total ca	tch: 79.00 CATCH/	THOUR: 158.00	Sorted: 10 Kg Total cate	h: 114.00 CATCH/HOUR: 228.00
SPECIES		OF TOT. C SAMP.NO	• SPECIES	CATCH/HOUR & OF TOT. C SAMP.NO.
Johnius dussumieri Thryssa vitrirostris Trichiurus lepturus Otolithes rubur Arius dussumierii Pomadasya kaekan CARIDEA Metapenaeus monocoros Therapon theraps Penaeus indicus Sepia iaraonis Penaeus monodon Lelognathus equulus Pellona ditchela Cynoglosus attenuatus Gazza minuta Upeneus sulphureus Penaeus japonicus Total	weight numbers 36,99 3032 26,40 3028 27,60 296 19,40 312 12,30 82 12,30 32 2,66 90 11572 4,20 266 3,30 32 2,66 90 1,60 278 1,30 16 0,80 32 0,80 50 0,50 32 0,30 16 0,00 15 0,0	23.35 16.71 299 15.57 12.20 7.78 6.20 2.66 2.09 1.68 1.01 0.82 0.63 0.51 0.51 0.32 0.15	Trichiurus lepturus Pellona ditchela Upeneus sulphureus Siganus sutor Polynews textarius Upeneus vittatus Thryssa vitrirostris Thenus orientalis Tryssa settrostris Carangoldes malabaricus Secutor insidiator Metapenaeus monoceros Stolephorus commersonii Penaeus japonicus Penaeus indicus Loligo duvauceli Dussumieria acuta Squilla sp. Saurida undosquamia FENNEINDE Sepia faraonis	Meight numbers 76:00 1860 33.33 35 50:60 4400 22.19 22
DATE:18/ 8/90 GEA	R TYPE: BT No:1 POSIT	OJECT STATION: 138 ION:Lat S 1829	Cynoglossus attenuatus Pomadasys maculatum Apistus carinntus	0.50 50 0.22 0.50 76 0.22 0.50 26 0.22
start stop durets TIME :00:51:00 09:21:100 30 LOG :7260.20 7261.90 1.60 PDEPTH: 23 25 BDEPTH: 23 25 Towing dir: 228 Wire Sorted: 17 Kg Total ca	(min) Purpose code: 3 Area code : 1 GearCond.code: Validity code: out: 150 m Speed: 34 kn		Appaces Carlintos Leiognatius elongatus Trachinocephalus myops Alepes djeddaba Leiognathus equulus Penseus scmisulcatus Total	0.50 452 0.22 0.50 26 0.22 0.50 76 0.22 0.26 26 0.11 0.12 2 0.05
SPECIES	CATCH/HOUR .	OF TOT. C SAMP.NO.		
Nerklotsychthis quadrimaculatu Rastrelliger konagurta Pomadasys maculatum Sphyraena flavicauda Docapterus runscill Saurida undosquamis Secutor insidiator Sphyraena novae hollandia Alepsa gjeddaba Gerres filamentosus Nemipterus delangae	weight numbers 265,30 138,20 1906 28,80 26 15,00 190 7,60 20 4,40 272 3,80 26 2,20 20 2,20 20 2,20 26	55.20 300 28.76 301 5.99 3.12 1.75 0.92 0.79 0.58 0.46	DATE:18/ 8/90 GEAR start stop duration TIME :16:02:00 16:32:00 30 (m LOG :7315:10 7316.70 ;,70 FDEPTH: 9 12 BDEFTH: 9 12 Towing dir: 210 Wire ou Sorted: 9 Ng Total catcl	in) Purpose code: 3 Area code: 1 GearCond.code: Validity code: t: 100 m Speed: 32 kn*10
Upeneus vittatus Penaeus japonicus	1.40 54 0.46 B	0.29	SPECIES	CATCH/HOUR % OF TOT, C SAMP.NO. veight numbers
Total	480.56	100.00	Johnius dussumieri Thryssa vitrirostris Otolithes ruber	76.00 8444 37.25 45.00 5000 22.06 20.00 1900 9.80
Stort stop durati TIME: 12:13:00 12:44:00 31 LOG: 7290.50 7292.50 2.00 FDEPTH: 21 21 BOEPTH: 21 21	R TYPE: BT No.1 POSITO  (MIN) Purpose code: 3 Area code: 1 GearCond.code: Validity code: out: 150 m Speed: 39 km'  tch: 30.70 CATCH/H  CATCH/HOUR welght numbers 33.00 2206 14.13 374 3.39 43 1.74 4 1.26 46 1.06 4 0.66 23	HOUR: 59,42 OF TOT. C SAMP.NO. 55.54 302 23.78 5.71 2.93 2.12 1.78 1.11	Cyncylossus attenuatus Pomedasys kaakan CARIDEA Sepia faraonis Tryssa setirostris Portunus sanguinolentus Squilla sp. Rebrias rebriaria Rebrias rebriaria Penneus indicus Hetapenaeus monoceros Gazza minuta FLATYCEPHALIDAB Pelloma ditchela Penaeus monodon Stolephorus commersonii Upencus sulphureus Penaeus japonicus Total	6.00 480 2.94 5.20 2 2.55 3.40 1.67 3.20 20 1.57 3.00 60 1.47 2.00 40 0.98 2.00 40 0.98 2.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.98 1.00 40 0.99 1.00 40 0.99 1.00 20 0.29 0.60 20 0.29 0.50 240 0.29 0.50 6 0.20 0.26 0.20 1.50 0.10 0.20 20 0.10 0.14 4 0.07
Sobytaena (lavicauda Thrysas virtirostris Penaeus indicus Usrikolskychthis quadrimaculatu Penaeus japonicus Sepia faraonis Loligo duvauceli Therapon theraps Secutor insidiator Upeneus vittatus Alepes djeddaba Trysas asctirostris Fomadasys maculatum Leiognathus elongatus	0.56 14 0.56 8 0.441 6 0.39 25 0.25 21 0.19 25 0.19 27 0.19 17 0.19 17 0.19 17 0.19 17 0.19 17 0.19 17 0.19 17 0.19 18	0.94 0.94 0.81 0.72 0.66 0.42 0.39 0.32 0.32 0.32 0.32 0.32	start stop duration TIME :06:59:00 07:29:00 30 (m. LOG :7329:00 7330:50 1:50 FDEPTH: 14 18 BDEPTH: 14 18	in) Purpose code: 3 Area code: 1 GearCond, code: Validity code: 1: 100 m Speed: 30 kn*10
PENAÉIDAE	0.04 4	0.07	Pomadasys keeken	weight numbers 65.60 422 34.42
start stop duratic Time 13:17:00 13:16:00 29 ( LOG :7296.20 7297.90 :.70 FDEPHH: 20 20 DDEPHH: 20 20 Towing dir: 200* Wire of Sorted: 13 kg Total cat SPECIES Pellona ditchela	(* TTF: BT No:1 POSITY  min) Purpose code: 3 Area code: : GearCond.code: Validity code: vut: 150 m Speed: 34 km*  cch: 49.70 CATCH/F  CATCH/HOUR weight numbers 54.62 4370	OUR: 102,83 OF TOT, C SAMP.ND. 53.12	Cynoglossus attenuatus Polynemus sextarius	19.30 2164 10.13 204 15.68 1340 8.23 14.40 18 7.56 13.40 2 7.03 13.28 278 6.97 12.00 688 6.30 11.90 318 6.29 4.80 266 2.53 4.82 266 2.53 4.82 279 6.22 1.82 24 0.95 1.82 48 0.95 1.80 60 0.94 1.64 94 0.86 1.32 106 0.69 1.20 84 0.63
Trichiurus lepturus Triysas vitrirostris Metapenaeus monoceron Scomberomorus plurilineatus Penaeus indicus Otolithes ruber Loligo duvauceli Sepia feraonis Thenus orientalis Upeneus sulphureus Polymenus sextarius Dussumieria acuta Squilla sp. Scomberei acuta Squilla sp. Triysas setirostris Johnius sp. Lelognathus elongatus Trysas setirostris Johnius sp. Lelognathus elongatus Stoicphorus commersonii Total	20,07 511 8,61 852 3,43 147 3,10 2 2,53 70 2,54 66 2,38 387 1,86 52 0,72 8 0,37 14 0,37 14 0,23 8 0,23 8 0,17 6 0,23 4 0,14 6 0,14 14 0,14 14 0,06 37 0,08 52	19.52 8.57 3.34 3.01 2.75 2.47 2.31 1.81 0.70 0.36 0.36 0.36 0.22 0.17 0.14 0.14 0.14 0.14 0.16 0.18	Squilla sp. Parastromateus niger Penneus japonicus PENNEIDE Trachinocephalus np. APOGONICUS Lagocephalus sp Secutor insidiator Metapenaeus stebbingi Total	0.60 36 0.31 0.60 12 0.31 0.44 16 0.23 0.24 36 0.13 0.20 12 0.10 0.20 48 0.10 0.20 48 0.10 0.20 48 0.10 0.20 48 0.00 190.64 100.00

Total

102.82

100.01

PROJECT STATION: 144   ONTE:129/ 6/90   GEAR TYPE: DT No:1	DATE:20/ 8/90 CEAR TYPE: DT No:1 PROJECT STATION: 148  start stop duration Purpose cude: 1 Long © 1558  LOG :7611.30 7613.10 2.00 Area code : 1  PDEPTH: 22 26 Gentlond.code: DOEPTH: 22 26 Validity code: Towing dir: 210 Wire out: 150 m Speed: 16 km*10
Sorted: 13 Kg Total catch: 43.50 CATCH/HOUR: 87.00	Sorted: Ng Total catch: 18,93 CATCH/HOUR: 37,86
SPECIES   CATUB/HOUR   1 OF TOT. C SAMP.ND.	Scomberomorus Commersoni   Weight   Numbers   Santa-Advanced   State   State
Trichiurus lepturus 1.52 34 1.75 LOLICINIDAE 1.46 46 1.69 Rastreiliger kanagurta 1.20 6 1.30 Saurida undosquamis 1.20 20 1.38 Alepes djoddaba 1.00 14 1.15 Pomadasys maculatum 0.80 20 0.92 Sardinella gibbosa 0.26 6 0.30 Pemeusus japunjuus 0.12 6 0.14 Lolognathus elongatus 0.06 40 0.07 Slotephorus commerzanii 0.06 20 0.07 Hetapunawus monoceros 0.04 2 0.05 PENAE IDAE	DATE: 20/ 0/90   GEAR TYPE: BT No:   PROJECT STATION: 149
Total 87.04 100.08	DDEFTH: 30 31 Validity code: Towing dir: 240° Mire out: 150 m Speed: 28 kn*10 Sorted: Kg Tetal catch: 53.54 CATCH/HOUR: 107.08
DATE:20/8/90   GEAR TYPE: BT No:1   PROJECT STATION: 145   1906   11   11   11   11   11   11   11	SPECIES   CATCH/HOUR   No.
Secution insidiator   14,20   858   4,09	Total 107.08 99.98  DATE:22/8/90 GEAR TYPE: BT No:1 POSITION: 150  Start stop duration Time :06:24:00 06:36:00 30 (min) Purpose cods: 3 Long E 3449  LOG :796:10 7963.00 1.90 Area code: 1 FDEFTH: 10 13 Validity code: Towing dir: 20* Wire out: 100 s Speed: 38 km*10  Sorted: 10 kg Total catch: 655:00 CATCH/HOUR: 1210.00
PROJECT STATION: 166	
DATE: 207 8/90   CER TYPE: BT No:1   POSITIONIAL   S   1908	CANCEN/HOUR   OF TOT. C   SAMP.NO.
Lisa macrolepis	DATE:22/ 8/90 GEAR TYPE: BT No:: POSITION:Int S 2019  Start stop duration Time :07:54:00 08:24:00 30 (min) Purpose code: 1 LOG 07971:50 1.60 Area code: 1 FDEPTH: 11 7 BDEPTH: 11 7 Towing dir: 190* Wire out: 100 m Spead: 32 kn*10  Softed: 14 Kg Total calch: 317.60 CATCH/HOUR: 634.00
DATE: 26/ 8/94	CATCH/BOUR   Numbers

start stop duration TIME :10:21:00 }9:51:00 30 (mi LOG :7586.40 7987.70 1.70	TPE: BT No:1 POSIT IN) Purpose code: 3 Area code : 1	ROJECT STATION: 152 FION:Lat S 2009 Long E 3454	start stop duration TIME :05:59:00 06:29:00 30 (mir LDG :8055.90 8057.70 1.50	Area code 1 1
FDEPTH: 8 8 DDEPTH: 8 8 Towing dir: 170° Wire out	GearCond.code: Validity code: : 100 m Speed: 26 km	1*10	PDEPTH: 17 16 DDEPTH: 17 16	Geartund.codo: Validity code: : 100 m Speed: 36 kn*10
Sorted: 17 Kg Total catch	: 451.00 CATCH	HOUR: 902.00	Sorted: 10 Kg Total catch:	: 79,70 CATCH/HOUR: 159,40
SPECIES	CATCH/HGUR \ weight numbers	OF TOT. C SAMP.NO.	SPECTES	CATCH/HOUR & OF TUT. C SAMP.No. weight numbers
Pellona ditchela Penadasys maculatum Arius dussumierii Thrysas wittirostris Upenaus wittirostris Upenaus wittirostris Upenaus wittirostris Upenaus mitaria Siliego sihnem Therapon theraps Otolithes unber Sardinell gibboa Sepia prachadi Johnius dutsumieri Leiognathus equulus Trichiurus lepturus Caranx heberi Polynemus maxtarius Secutor insidiator Dussumieria actva Pomadasys stridons Pomadasys stridons Pomadasys stridons Trysad smitiustis Trysad smitiustris Trysad smitiustris Total	184, 50 1 2820 156, 42 2256 156, 42 2256 54, 98 3408 31,00 820 25, 64 206 25, 64 206 25, 64 206 16, 92 410 15, 30 102 13, 184 256 13, 134 256 14, 10 552 15, 68 152 16, 68 152 17, 68 152 18, 68 52 22, 186 56 18, 56 56 18,	42.64 17.34 315 13.70 6.08 316 3.53 2.84 2.94 1.88 1.71 1.53 1.48 0.97 0.65 0.45 0.45 0.45 0.45 0.45 0.45 0.34 0.34 0.34 0.34 0.27 0.28 0.21 0.21 0.21 0.21 0.21 0.21	Johnius duscusieri Carcherthims sealei Thryssa vithirostris Diolithos rubur Pellom ditchela Porandasys maculatum Trichlurus lepturus Arius dussumierii Pomodasys kaakan Parastromataum niger Penacus libilcus Poettunus sanguinolentus Therapon thurapa Joinius amblycephalus Pacticodes deumei Penacus Japonicus Chardon Carsonis Siliago sichama Alepes dieddaba Chirocentrus dorab Polymemus sextarius Cynojlossus attenustus Squilla sp. Tryssa setirostris	22,20 846 20,20 21,00 8 13,17 18,00 840 11,29 323 17,00 168 10,66 13,20 298 8,28 322 12,60 334 7,90 8,40 132 5,27 7,00 64 4,39 4,20 14 2,63 3,60 14 2,36 2,08 34 1,30 1,80 14 2,13 1,80 142 1,13 1,80 142 1,13 1,80 12 1,13 1,80 12 1,13 1,26 44 0,79 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 25 0,63 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 24 0,75 1,20 25 0,63 1,20 24 0,75 1,20 2
1005	20,100		Upeneus sulphureus Sardinella yibbosa CYNOGLOSSIDAE	0.60 48 0.38 0.50 12 0.31 0.50 24 0.31
# start   ntop   duration   Time   :11:41:00   12:11:09   30   (m   LOG   :7992.90   7994.50   1.50   FDEPTH:   8   1   BDEPTH:   8   1   Towing dir: 160   Wire ou	in) Purpose code: 3 Area code: 3 GearCond.code: Validity code: t: 100 m Speed: 32 k		Leingnathus equulum Malayemaus monoceros PLATYCEPHALIDAE AFGOMEDAL Apistus carinatus PEMARIDAE Metapenseus stobbingi	0.40 12 3.25 0.22 12 0.14 0.20 60 0.13 0.20 108 0.13 0.10 20 0.06 0.02 10 0.01 0.02 0 0.01 159.40 95.97
SPECIES	weight numbers	OF TOT. C SAMP.NO.	start stop duration	PROJECT STATION: 157 (PE: ht No:1 POSITION:Let S 1916 Long E 3542
Peliona ditchela Tharapon theraps Thayasa vitricostris Podadasys acculatum Arius dusumierit Splyranna (laviesuda Secutor insidiator Letopatthus quutus	748.50 36334 366.80 5452 282.60 42818 173.50 4130 138.00 430 77.40 4956 69.40 1156 59.50 3800 19.80 496	36,66 17,96 13,84 8,50 6,76 3,89 3,40 2,91	TIME :08:53:00 09:23:00 30 (mir LOG :0081.83 0083.40 1.50 FDEPTH: 12 12 BOEPTH: 12 12	Area code : 1 GearCond.code; Validity code: : 100 m Speed: 32 kn*10
Ariomma indica Silago Sibema Carangoides molabaricus Pomalaya kadkan Otolithes runer Sardinella gibbosa Scomboroides bel Polynemus sextarius Punadasya atridons Psyttodas erumei APOGORIDAE Fenaeus indicus Scomberomorus plurilineatus Penaeus japonicus	16,50 168 16,50 330 15,50 495 15,20 4 13,20 166 2,30 166 2,30 166 3,30 166 3,10 166 1,90 4 1,70 166 1,68 34 1,28 2 1,16 52	0.81 0.81 0.74 0.65 0.41 0.16 0.15 0.15 0.09 0.09	Pelloma ditchela Trichiurus lepturus Mustelus Manazo Alepos djedaba Rastielligor kanaguta Scomberomorus commersoni Chirocentrus dorab Therapon Jarbua Carangoldes ferdau Ariosma indica Thryssa vittirostis Sardinelia gibbosa	CATCH/HOUR * OF TUT. C SARF.MO. velght numbers 70.69 5.80 126 5.00 5.14 2 5.42 5.27 2.90 30 2.94 1.82 4 1.85 324 1.80 6 1.81 1.40 12 1.01 0.60 6 0.61 0.60 0.61 0.55 6 0.55 1
Scombetomorus commersont Penceus semisulcetus Total DATE:22/ 8/90 GEAR Start stop duration	TYPE: BT No:1 POS.	0.05 317 0.02 317 100.04 PROJECT STATION: 154 ITION:Lat S 1953 Long E 2515	SPHYAREN FÉAVICNUM SCOMBERGIÓRE TOI SCOULO: INSIGIATOR FORMERSY AMEUILATUR FROMERS AMEUILATUR FROMERS TOINIOUS Upensum 'ILLIUS Motopensum stabbingi	0.40 6 0.41 0.40 0.40 0.40 0.40 0.40 0.40 0.40
TIME :15:09:00 15:32:00 23 (: LOG :8019.70 8021.00 1.30 FDEPTH: :8 15	Area code : GearCond.code;	3	Total	98,70 100,11
DEPTH: 18 15 Towing dir: 320° Wire on	Validity code; pt: 100 m Speed: 35	kn*10	DATE-23/ R/OD GEAR T	PROJECT STATION: 158  YPE: BT No:1 POSITION:Lat S 1918
Sorted: Ng Total cate	ch: 5.22 CATC	H/HOUR: 13.52	start step duration FIME :12:55:00 13:25:00 30 (#4)	hong E 3611 n) Purpose code: 3
SPECIES Atule mate Stolephorus heterolobus Decapterus russolii Thenus orientalis	weight numbers 7.30 159 2.30 1148 1.17 47 0.65 5	53.60 318 16.89 319 8.59 4.77	SDEFTH: 24 29	Area code : 1 GuarCond.code: Yalldity code: 150 m Speed: 34 km*10 : 57.22 CATCE/HOUR: 114.44
Secutor insidiator Chirocentrus dorab Leligo duvauechi Factiodes etumei Restrelliger kanagurta Gerres filamentosus Giephanolepis rectifrons Foliona ditechela Pomadasys stridens Thryssa vitrirostris Total	0.52 31 0.39 3 0.26 19 0.26 3 0.21 3 0.21 5 0.13 16 0.08 3 0.00 3 0.05 3	3,82 2,06 1,51 1,54 1,54 1,54 0,95 0,59 0,59 0,17	SPECIES Scomberomorus gommersoni Loligo duvauceli Lelognathus elongatus Nemipterus bleekeri Atter Uponeus bensesi Fortunus sanguinolentus Priacanthus hanrur Saurida undosquanis	CATCH/HOUR & UF TOT. C SAMP.NO. weight numbers 78.20 14 68.33 327 22.32 1224 19.50 325 3.64 3470 3.36 326 3.50 54 3.06 3.50 30 2.80 1.80 80 1.57 1.02 4 0.89 0.40 4 3.35 0.16 4 3.35
			Total	114.44 103.00
#tart stop duratio TIME   16:42:00   17:12:00   30 ( LOG   18028,70   8030.30   7.60 FDSPTH: 16   15 BDEFTH: 16   15	TYPE: BT No:) FCS min) Purpose code: Area code: GearCond.code: Yalidity code: ut: 100 m Speed: 32	1	DATE:23/ 8/90 GEAR: TIME :45:200 STORT STO	In) Purpose code: 3 Area code: 1 GearCond,code: Yalidity code: t: 150 m Speed: 32 kn*10
SPECIES  Powedasys maculatum Trichiburus lepturus Thryson vitrirostris Therapon theraps Tripturodon ofbim Pomadasys kaaken Pellona ditchela Johnius dusaumieri Otolithes ruber Letognathus equulus Alapca dipedaba Arius dusaumierii Openeus Aufphureus	CAICH/HOUR weight numbers 22.10 626 12.10 626	1 OF TOT. C SAMP.NO 21.03 321 14.11 6.04 325 7.75 7.29 6.88 6.45 5.99 4.67 4.67 4.67 2.90 2.90 2.90	SPECIES Scombetomorus commensoni Loligo duvauceli Leicymathua elongatus Hemipteevs bleckeri Saurida undosquamis PORTUNIDAE Sepla prosbadi Decapterus russelli Sphyraena novae hollandia Total	CATCH/HOUR & OF TOT. C SAMP.NO.  weight numbers 37.62 329 20.60 136 37.62 329 180 136 137.55 1.0.94 10.940 17.98 2.1.26 24 2.30 0.64 4 1.17 0.18 54 0.33 320 0.10 54 0.33 320 0.10 54 0.33 320 0.10 55 0.35 320
Upereus au purcus Torpedo muchilana Schadus Cynogloosus Attomatus Saurida undergusmis Ariomma indica HICILIDAD Cynogloobus HICILIDAD Upereus HICILIDAD Pereus Pelynemus schafrius Pereus Pereus Peneus Peneus Peneus Peneus Peneus Peneus Total	2.106 32 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.	1.93 3.90 0.75 0.26 0.28 0.28 0.19 0.19 0.19 0.19 0.09 0.09	start otop duration Time 106:25:00 06:05:00 30 (m; LOG :0702,80 8784.30 1.50 PDEFTH: 21 23 TOWING dir: 1007 Mice out Sorted: 9 Kg Total catch  SPECIES Lelognathud elongatus Echonesis caucrates Upromus benassi LOLIGINIDAE Decepterus macrocoma	in) Purpose code: 3 Area code: 1 GearCond,code: Validity code: t: 150 m Speed: 30 kn*10
			Docapterus russelli Total	0.02 6 0.03 62.90 100.00

```
PROJECT STATION: 161
GEAR TYPE: BT No:1 POSITION:Lat S 2253
ration Long E 3539
      Total catch: 250.00 CATCH/HOUR: 535.71
         Sorted: Kg
                                                                 CATCH/HOUR LOW TOT, C SAMP.NO.
weight numbers
502.61 1506 93.82 331
14.57 34 2.72
8.46 6 1.58
5.36 2 1.00
3.15 2 0.59
1.07 9 0.20
0.62 2 0.12
0.62 2 0.12
0.32 4 0.06
0.21 4 0.04
0.13 2 0.02
0.02 11
SPECIES
Polysteganus coeruleopunctatus
Aphareus rutilans
Argyrops spinifer
Spineroides sp.
Zeus faber
Thammaconus (ajardoi
Scorpaenopsis venota
Spriinak
Histiopterus tyfus
Parupeneus sp.
Caesio sp.
                                                                                                   100.15
                                                                   536,52
Total
      Sorted: 9 Kg Total catch: 82.00 CATCH/HOUR: 164.00
                                                               CATCH/HOUR
weight numbers
5134 3920
464.70 6
30.90 6
11.46 18
5.62 218
4.32 2
3.26 4
3.20 8
2.36 2
1.00 6
1.00 6
SPECIES
                                                                                            1 OF TOT. C SAMP.NO.
Colidinida
Caphalopholis albimarginatus
Aphareus rutilans
Polysteyanua conrulcopunctatus
Caesio sp.
Epinepholus episticus
Scyllaridos elisabethae
Parupeneus rubescens
Cheimorius nufar
Argyrops filamentosus
Priacanthus homzur
Total
                                                                  164.16
                                                                                                100,10
      DATE: 27/ 8/90 GEAR TYPE: BT No:1 PROJECT STATION: 163

DATE: 27/ 8/90 GEAR TYPE: BT No:1 POSITION:Lat S 2325

TIME: 161: 201:00 16:59:00 30 (min) Purpose code: 3

LOG: 0868.60 8870.80 1.40 Area code: 1

TOPEPTH: 182 173 GearCond.code:

BOEPTH: 182 173 Validity code:

Towing dir: Wire out: 800 m Speed: 44 kn*10
         Sorted: Kg
                                          Total catch: 16.00 CATCH/HOUR:
                                                                                                              26,00
                                                             CATCH/HOUR N OF TOT. C SAMP.NO. weight numbers 20.00 100.00
Deepwater fish mixture
                                                                                  100.00
                                                          20.00
Total
     Sorted: Eg Total catch: 55.00 CATCH/HOUR: 112.00
                                                               CATCH/HOUR 1 OF TOT. C SAMP.NO. weight numbers 100.00 2 89.29 12.30 2 10.98
Sphyrna lewini
Scomberomorus commersoni
                                                           112.30
                                                                                               100,27
```

	PROJECT STATION: 163  YPE: BT No:1 POSITION:Lat S 2452 Long E 3516
TIME :13:25:00 13:55:00 30 (m1	
LOG :9066.10 9067.70 1.70	Area code : 1
FDEPTH: 121 123	GearCond.code:
BDEPTH: 121 123	Validity code:
Towing dir: 210° Wire out	: 550 m Speed: 32 kn*10
Sorted: 9 Kg Total catch	: 215.00 CATCH/HOUR: 430.00
SPECIES	CATCH/HOUR OF TOT, C SAMP, NO
	weight numbers
Cheimerius nufar	148.50 162 34.53 332
LOLIGINIDAE	103.66 9014 24.11
Rhizoprionodon acutus	66.80 10 15.53
Polysteganus coeruleopunctatus	44.50 98 10.35
Chysoblephus anglicus	21.20 6 4.93
Epinephelus albimarginatus	14.30 2 3.33
Petrus rupestris	10,60 2 2,47
Scyllarides elisabethae	7.50 10 1.74
Squalus acanthias	5.46 28 1.27
Dactyloptena orientalis	2.72 14 0.63
Pagellus natalenses	2.72 28 0.63
Fistularia petimba	2.04 28 0.47
Total	430.00 99.99
start stop duration	PROJECT STATION: 166 TYPE: BT No:1 POSITION: Lat S 2504 Long E 3507
TIME :17:05:00 17:35:00 30 (mi	
LCG :9098.00 9099.90 1.90	Area code : 1
FDEPTH: 93 95	GearCond.code: .
BDEPTH: 93 95 Towing dir: 214' Wire out	Validity code: 5 :: 450 m Speed: 38 kn*10
Sorted: Kg Total catch	: 1000,00 CATCH/HCUR: 2000,00
SPECIES	CATCH/HOUR & OF TOT, C SAMP, NO weight numbers
SPARIDAE	1806.00 90.00
MISCELLANEOUS	200,00 10.00
Total	2000,00 100.00