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AND NATURAL RESOURCES

FISHERIES DEPARTMENT:  
COAST PROVINCE

PROJECT KEN/74/023  
"OFFSHORE TRAWLING SURVEY"

work-report no 6

LIVE FISHING DURING THE  
SURVEY PERIOD 1979-1981.

ROME, NOVEMBER 1981.

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SUMMARY.

With four hand operated snapper reels have been fished on, for R/V UJUZI, non trawlable grounds mainly on the North Kenya Bank.

The catches have been analysed by region, season and depth and compared with handline catches.

Average catch rates on the North Kenya Bank ranged from 2.3-6.4 kgs/reel-hour, highest in the depth range 16-75 meters during the south-east monsoon period.

In other areas the average catch rates were below 1 kg/reel-hour.

In the north-east monsoon period the family Lutjanidae formed the bulk of the catches, with two species Lutjanus sanguineus and Pristipomoides (typus) clearly depth restricted. In the south-east monsoon period the family Serranidae dominated with its species Epinephelus tauvina especially in the shallower waters.

INTRODUCTION.

As mentioned in the project document one of the survey activities of the project was to undertake experimental fishing with various types of fishing gear. According to this obligation the project purchased four electric snapper reels with the aim to explore, the for R/V UJUZI, non-trawlable areas. The reels were ordered and installed, without the electric motor, in 1979 and the operations, by hand, started in 1980. In general the fishing was done during the normal trawl-survey however on one occasion when the main winch was broken down, only the reels were on board. Normally the four reels were operated with four hooks no. 4 on each line. The bait was generally squid caught in the deep waters off Malindi. The areas of operation were spread over the entire Kenya coast however most of the fishing was done on the North Kenya Bank. The time spent at each station varied according to the catch with a minimum of ten minutes. The fishing depth varied up to a maximum of 130 meters. The main problems encountered during the operations were the strong current which moved the vessel in short time far of the fishing location and the sharks who cut the hooked fish and the bridles. The data and results of the operations together with a drawing of a snapper reel have already been presented in the project work reports no. 2 and 3.

cont 2...

In this report the data are repeated but worked out more in detail and the results compared between the different areas and with the few handline station catches caught by the crew while at anchorage. These operations were private and done mostly at night by one or two crew-members using simple handlines with a single hook which was bigger than the ones of the reels.

#### THE DATA.

The data have been analysed and the results described by region, depth range and season in order to compare the regions and the two different monsoon periods. As described in the project work reports no. 4 and 5, during the south-east monsoon period the entire Kenya coastal surface waters, up to 100 meters depth, are formed by the homogeneous water mass of the East African Coastal Current (EACC). During the north-east monsoon period this water mass layer gets thinner and disrupted by several thermoclines while on the North Kenya Bank it completely is replaced by the Somali Current water mass.

#### RESULTS.

The snapper reel records and results are presented in table 1. By far the biggest effort was made on the North Kenya Bank during the north-east monsoon period in depths up to 75 meters.

For the calculation of the catch rate as unit of effort has been taken "the reel-hour" since the number and type of hooks per reel was constant throughout the exercise (Gonzales Alberdi, 1975). The average catch rate (kg/reel-hour) varied for the North Kenya Bank from 2.3-6.4 and was comparatively higher for the depth range 16-75 meter in the south-east monsoon. The other regions had an average catch-rate of less than 1 kg/reel-hour.

The catch compositions for the North Kenya Bank by family/genus/species are presented in table 2A and B. During the north-east monsoon period the bulk of the catch was formed by species of the family Lutjanidae which were represented in more than 25 percent of the catches. Remarkable is the dominance of Lutjanus sanguineus and Pristipomoides (typus) in resp. the depth ranges under and above the 75 meters. In the southeast monsoon period the catches in the depth range 16-75 meters consisted mainly of species of the family Serranidae.

Table 3 gives the results of the handline catches in the different areas. One notice the total absence of the species Pristipomoides, probably due to the shallow depth, and the increasing quantities (weight) of the species Epinephelus tauvina over the south east monsoon period which phenomenon also occurred in the snapper reel catches. Since the handline has also been used in the estuaries and bays with sand/muddy bottoms various other species such as Arius sp occurred in the catches contrary to the snapper reel catches.

LITERATURE.

- Anon. 1981, Project KEN/74/023, work reports no. 1, 2 and 3. Survey activities in resp. 1979, 1980 and 1981.
- Anon. 1981, Project KEN/74/023, work report no. 4. Surface current movements of Kenya offshore waters observed during the survey period 1979-1981.
- Anon. 1981, Project KEN/74/023, work report no. 5. Biological observations and analyses during the survey period 1979-1981.
- Gonzales Alberdi, P. 1975, An analysis of the data from the Bahamas reel fishery survey with a preliminary estimate of the potential of the deep water resources. FI: DP BHA/71/572/3, ROME, FAO.

TABLE : 1

## SNAPPER REEL RECORDS AND RESULTS BY AREA, SEASON AND DEPTH RANGE.

- 4 -

AREA	NORTH KENYA BANK						OFF MALINDI	MALINDI BANK	MALINDI BANK/ PEMBA ISLAND
	NORTH-EAST MONSOON			SOUTH-EAST MONSOON			SOUTH-EAST MONSOON		
SEASON	16-75	76-125	TOTAL	16-75	76-125	TOTAL	43-55	10-85	10-60
DEPTH RANGE (METERS)	16-75	76-125	TOTAL	16-75	76-125	TOTAL	43-55	10-85	10-60
NUMBER OF STATIONS	30	19	49	7	1	8	2	8	5
DURATION (HRS. MIN)	16.35	17.50	34.25	5.45	1.00	6.45	0.30	5.00	2.40
CATCH (KGS)	218.0	404.3 <sup>(*)</sup>	622.3	93.3	9.4	102.7	0.8	15.0	0.0
AVERAGE CATCH RATE (KG/REEL-HOUR)	2.3	2.8	2.5	6.4	2.4	5.9	0.1	0.5	0.0
STATIONS WITH NO CATCH (DURATION)	14 (5.0)	11 (5.45)	25	1 (1.0)	-	1	1 (0.10)	4 (1.25)	5 (2.40)
AVERAGE CATCH RATE OF STATIONS WITH CATCH (KG/REEL-HOUR)	4.7	6.6	5.4	7.5	2.4	6.7	0.2	1.0	0.0
REMARK ON CATCH RECORDS	FAMILY/SPECIES COMPOSITION						NO SPECIES COMPOSITION		

(\*) Included one station with 272 kgs in 6 hrs

TABLE 2A: SEASONAL CATCH COMPOSITION OF MAJOR FAMILIES, GENERA, SPECIES, BY DEPTH OF SNAPPER REEL CATCHES ON THE NORTH KENYA BANK.

SEASON DEPTH RANGES (METERS) NUMBER OF STATIONS	NORTH-EAST MONSOON PERIOD				49	SOUTH-EAST MONSOON PERIOD			
	16 - 75 30		76 - 125 19			16 - 75 7		76 - 125 1	
FAMILY/SPECIES	WEIGHT (KGS)	% OF STA. WHERE SPECIES CAUGHT	WEIGHT (KGS)	% OF STA. WHERE SPECIES CAUGHT	TOTAL (KGS)	WEIGHT (KGS)	% OF STA. WHERE SPECIES CAUGHT	WEIGHT (KGS)	TOTAL (KGS)
<b>LETHRINIDAE</b>	42.2		108.0		150.2	5.1	-	0	5.1
LETHRINUS BORBONICUS	1.0	3.3	-		1.0	-	-	-	-
L. LEUTJAN	0.5	3.3	-		0.5	-	-	-	-
L. MINIATUS	6.0	16.7	11.7	10.5	17.7	5.1	14.3	-	-
L. NEBULOSUS	31.9	10.0	3.0	5.3	34.9	-	-	-	-
L. SP	2.8	6.7	93.3	15.8	96.1	-	-	-	-
<b>LUTJANIDAE</b>	97.4		178.3		275.7	9.0		0.7	9.7
APRION VIRESCENS	-		17.6	5.3	17.6	-	-	-	-
LUTJANUS BOHAR	3.4	3.3	-	-	3.4	-	-	-	-
L. RIVULATUS	12.2	6.7	6.5	5.3	18.7	7.2	14.3	-	7.2
L. SANGUINEUS	72.0	23.2	-	-	72.0	-	-	-	-
L. SEBAE	7.4	3.3	-	-	7.4	-	-	-	-
PINJALO PINJALO	2.4	3.3	-	-	2.4	-	-	-	-
PRISTIPOMOIDES (TYPUS)	-	-	154.2	26.3	154.2	-	-	-	-
P. ARGYROGRAMMICUS	-	-	-	-	-	1.8	14.3	0.7	2.5
<b>SERRANIDAE</b>	54.0		54.0		108.0	67.4		4.8	72.2
CEPHALOPHOLIS MINIATUS	8.6	10.0	0.6	5.3	9.2	-	-	-	-
C. SONNERATI	14.0	10.0	-	-	14.0	-	-	-	-
C. SP	-	-	-	-	-	4.7	28.6	-	4.7
EPINEPHELUS AREOLATUS	4.2	6.7	4.4	5.3	8.6	13.2	57.1	-	13.2
E. COERULEOPUNCTATUS	-	-	4.8	5.3	4.8	-	-	-	-
E. DIACANTHUS	1.4	3.3	13.6	21.0	15.0	-	-	-	-
E. FASCIATUS	2.1	6.7	-	-	2.1	-	-	-	-
E. FLAVOLIMBATUS	-	-	10.0	5.3	10.0	5.0	14.3	-	5.0
E. GRAMMATOPHORUS	-	-	2.1	5.3	2.1	-	-	4.8	4.8
E. MORRHUA	3.0	3.3	-	-	3.0	-	-	-	-
E. TAUJINA	-	-	-	-	-	44.5	28.6	-	44.5
E. SP	20.7	10.0	18.5	10.5	39.2	-	-	-	-

TABLE 2B: SEASONAL CATCH COMPOSITION OF MINOR FAMILIES, GENERA, SPECIES, BY DEPTH OF SNAPPER REEL CATCHES ON THE NORTH KENYA BANK

SEASON: DEPTH RANGES (METERS) NUMBER OF STATIONS	NORTH-EAST MONSOON				SOUTH-EAST MONSOON		
	16 - 75 30		76 - 125 19		16 - 75 7		76 - 125 1
FAMILY/SPECIES	WEIGHT (KGS)	% OF STA. WHERE SPECIES CAUGHT	WEIGHT (KGS)	% OF STA. WHERE SPECIES CAUGHT	WEIGHT (KGS)	% OF STA. WHERE SPECIES CAUGHT	WEIGHT (KGS)
SHARK/RAYS	9.0	13.2					
BALISTIDAE	3.2	6.7					
CARANGIDAE CARANX IGNOBILIS			20.5	5.3			
DULEIDAE DULES TAENIURUS					4.9	14.3	
EPHIPIIDAE EPHIPPUS SP	2.0	3.3					
PENTAPODIDAE GYMNOCRANIUS GRISEUS			0.2	5.3			
G. ROBINSONI	2.3	3.3					
MONOTAXIS GRANDOCULIS							3.9
POMADASYIDAE PLECTORHYNCHUS PICTUS	3.4	3.3					
POMADASYIDAE POMADASYUS OPERCULARIS					3.2	28.6	
SCOMBRIDAE EUTHYNNUS AFFINIS			3.3	5.3			
SPARIDAE ARGYROPS FILAMENTOSUS			17.5	5.3			
CRENIDENS CRENIDENS	5.2	3.3					
SPARUS MAJOR					3.2	14.3	
APHAREUS SP.			8.3				



TABLE: 3

## RESULTS OF HANDLINE FISHING OPERATIONS IN 1979, 1980 AND 1981.

- 7 -

AREA DEPTH MONTHS FAMILY/SPECIES/KG	NORTH KENYA BANK 5-50 METERS						UNGAMA BAY 10-20 METERS			OFF MALINDI 20-35 METERS	
	JAN	APRIL	AUG	SEPT	NOV	TOTAL	JAN	APRIL	MAY	FEBR	MARCH
	SHARK/RAYS		13.2				13.2		7.0		
ARIIDAE ARIUS SAGOR ARIUS SP		13.1 5.0				18.1	15.4	15.0	1.4	18.0	
CARANGIDAE CARANX SP		4.7			3.2	7.9					
LETHRINIDAE LETHRINUS MINIATUS L. NEBULOSUS		6.0 4.4			2.6	13.0					
LOBOTIDAE LOBOTES SURINAMENSIS				7.0		7.0					
LUTJANIDAE LUTJANUS BOHAR L. ARGENTIMACULATUS L. RIVULATUS L. SANGUINEUS L. SEBAE PINJALO PINJALO					10.1	81.1				2.0 4.2	
	7.0	12.9			16.0						
		27.3									
		3.6									
					4.2						

CONT 2...

TABLE: 3 - CONTINUATION -

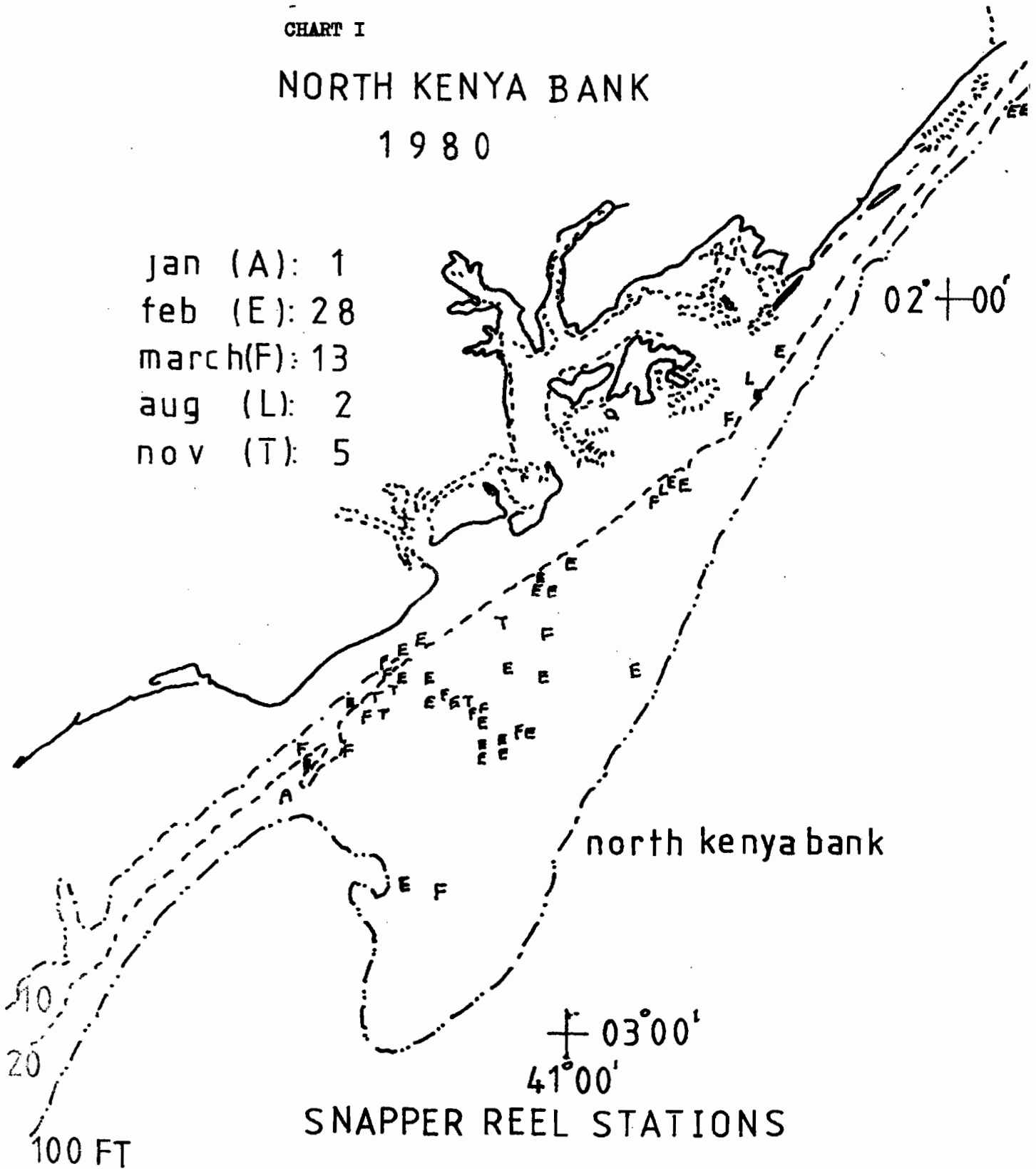
AREA	NORTH KENYA BANK						UNGAMA BAY			OFF MALINDI	
	5-50 METERS						10-20 METERS			20-35 METERS	
DEPTH	JAN	APRIL	AUG	SEPT	NOV	TOTAL	JAN	APRIL	MAY	FEBR	MARCH
MONTHS											
FAMILY/SPECIES/KG											
POMADASYIDAE PLECTORHYNCHUS PICTUS POMADASYIS OPERCULARIS		2.5			2.2	4.7		3.5			2.6
SCOMBRIDAE SCOMBEROMORUS COMMERSON					18.5	18.5			4.0		6.5
SERRANIDAE CHEPHLOPHOLIS SP EPINEPHELUS AREOLATUS E. TAUVINA E. SP.	6.6 3.0	18.2 14.0	29.0	44.0	101.5	220.9					26.0 12.8
SPHYRAENIDAE SPHYRAENA JELLO S. BARACUDA S. OBSTUSATA S. SP		0.8 2.5				3.3	0.6		2.0		3.4
THERAPONIDAE THERAPON SP		7.0				7.0					
DREPANIDAE DREPANE PUNCTATA		3.3				3.3					
NUMBERS OF NIGHTS	1	6	1	1	1	10	1	1	1	1	1

CHART I

NORTH KENYA BANK

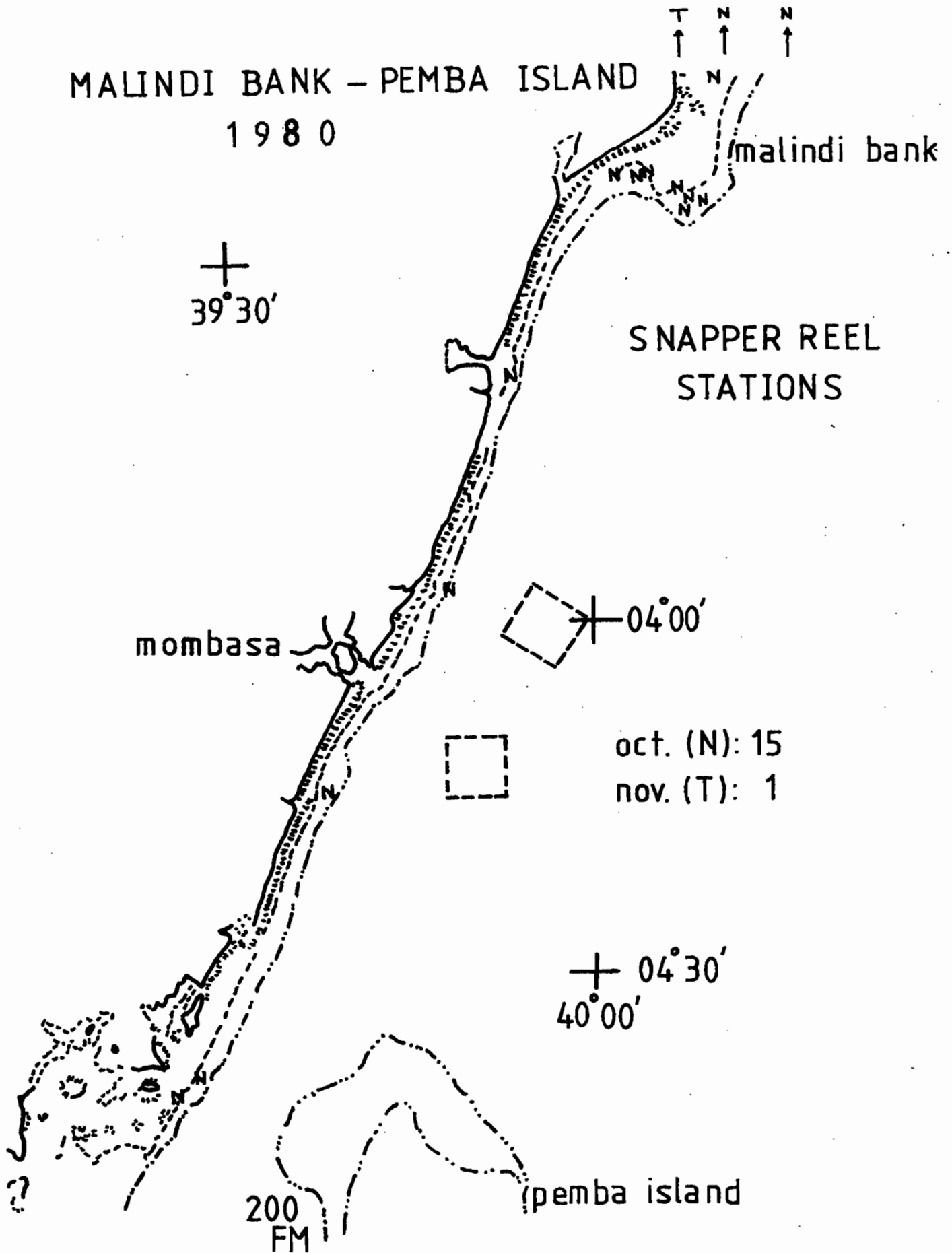
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feb (E): 28  
march(F): 13  
aug (L): 2  
nov (T): 5

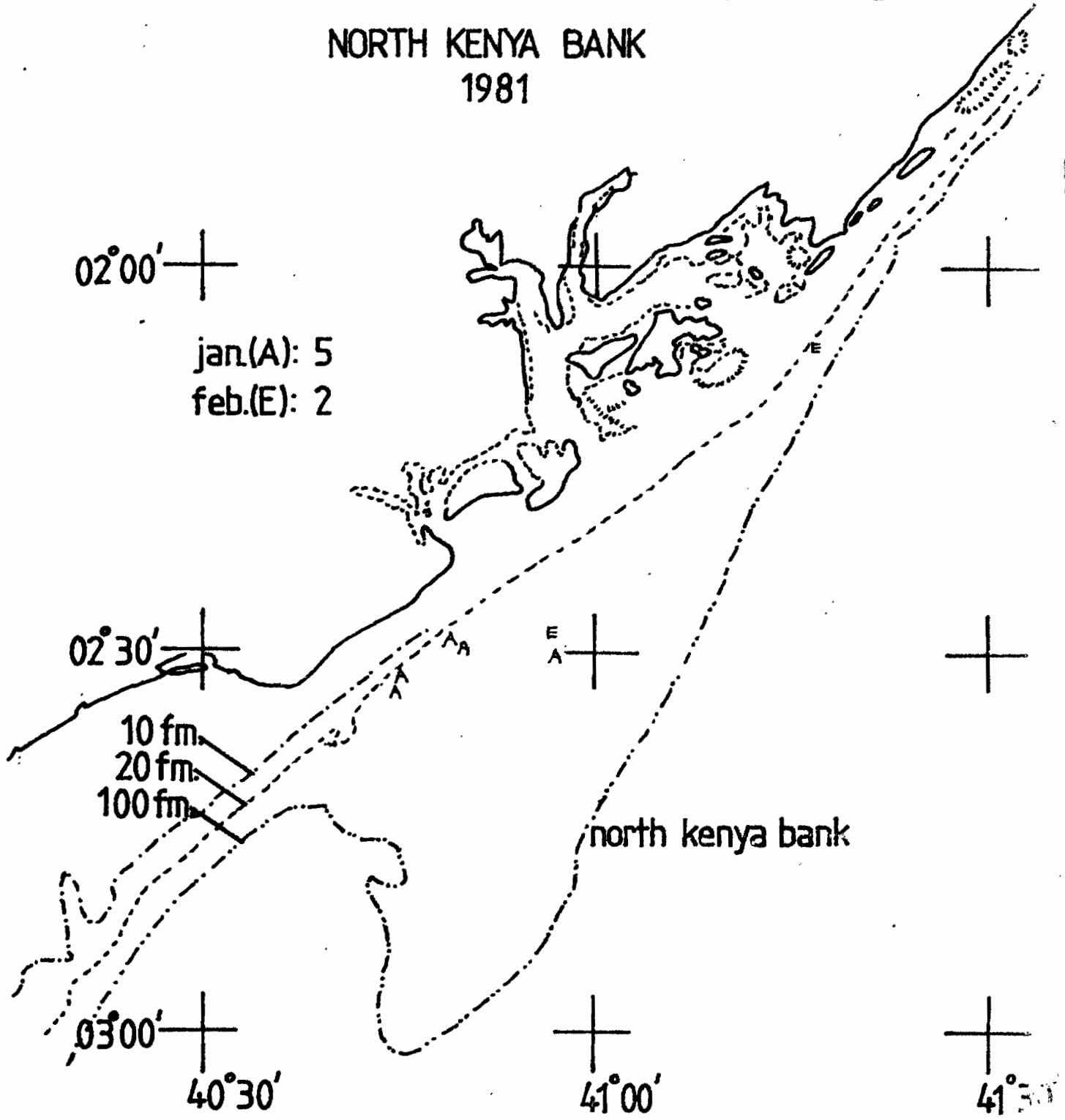


# MALINDI BANK - PEMBA ISLAND

1980



NORTH KENYA BANK  
1981



SNAPPER REEL STATIONS

KEN/74/023 "OFFSHORE TRAWLING SURVEY"  
R/V UJUZI FAO 29  
DATA OF FISHING OPERATIONS IN KENYAN WATERS DURING 1980  
SNAPPER REEL STATIONS

DATE	LOCAL TIME START	DURATION (MIN)	SNAPPER REEL NUMBER	NUMBER OF REELS	DEPTH (METER; MIN/MAX)	POSITION		TOTAL CATCH (KG)	SPECIES
						SOUTH ° ' "	EAST ° ' "		
25-1	18.00	20	1451	2	40	02 41	40 37 5	2.2	LETHRINUS NEBULOSUS(2.2)
8-2	06.00	80	1551	4	45-55	02 37 5	40 40	16.2	SHARK(5.2) EPINEPHELUS MORRHUA(3.0) EPINEPHELUS FASCIATUS(1.4) LETHRINUS MINIATUS(1.1) LETHRINUS NEBULOSUS(2.0) CEPHALOPHOLIS SONNERATI(3.5)
9-2	08.00	15	1552	4	35-45	02 33	40 43	0	CRENIDENS CRENIDENS(5.2) EPINEPHELUS FASCIATUS(0.7)
9-2	13.45	10	1557	4	60-65	02 23 5	40 58	24.8	LUTJANUS RIVULATUS(4.2) CEPHALOPHOLIS SONNERATI(9.1)
9-2	14.05	10	1558	4	55-65	02 23	40 58	0	BALISTIDAE(1.2) LUTJANUS SANGUINEUS(3.8)
9-2	14.50	100	1559	4	22-45	02 21 5	41 00	0	LETHRINUS MINIATUS(0.6)
9-2	17.00	15	1560	4	50-55	02 23	40 57	0	
9-2	09.20	30	1553	4	45-55	02 29	40 47	0	
9-2	10.50	20	1554	4	75-80	02 30	40 55	0	
9-2	11.40	15	1555	4	65-75	02 30 5	40 58	0	
9-2	12.20	20	1556	4	80-90	02 31	40 49	0	

DATA	LOCAL TIME START	DURA ION (MIN)	SNAPPER REEL NUMBER	NUMBER OF REELS	DEPTH MIN/MAX)	POSITION		TOTAL CATCH (KG)	SPECIES
						SOUTH ° ' "	EAST ° ' "		
11-2	18.55	10	1561	4	25	01 46	41 35	0	
11-2	19.15	60	1562	4	25	01 46	41 35	70.5	LETHRINUS NEBULOSUS(27.7) LUTJANUS SEBAE(7.4) CEPHALOPHOLIS MINIATUS(4.9) EPINEPHELUS(15.6) LETHRINUS(2.5) LUTJANUS RIVULATUS(8) PINJALO PINJALO (2.4) EPHIPPUS(2)
12-2	14.05	35	1563	4	30-33	02 04	41 17 5	0	
12-2	14.50	10	1564	4	20-25	02 07 5	41 15	0.8	LETHRINUS MINIATUS(0.8)
12-2	16.15	25	1565	4	57-87	02 15	41 09 5	2.3	CYMNOCRANIUS ROBINSONI(2.3)
12-2	17.00	50	1566	4	25-40	02 15	41 08	8.3	EPINEPHELUS(3.2) LETHRINUS MINATUS(0.3) LETHRINUS BORBONICUS(1.0) CEPHALOPHOLIS MINIATUS(1.7) BALISTIDAE(2)
13-2	08.45	35	1567	4	150	02 30	41 05 5	0	
13-2	10.55	60	1568	4	100-110	02 36 5	40 55	14.3	EPINEPHELUS CAERULEOPUNCTATUS(4.8) EPINEPHELUS(8.0) PRISTIPOMOIDES TYPUS(1.5)
13-2	12.15	360	1569	4	90-120	02 37	40 53	272	PRISTIPOMOIDES TYPUS(124.6) LETHRINUS(56) LETHRINUS MINIATUS(4.9) ARGYROPS FLAMENTOSUS(17.5) EPINEPHELUS DIACANTHUS (3.1) APRION VIRESCENS(17.6) EUTHYNNUS AFFINIS(3.3) EPINEPHELUS AREOLATUS(4.4) CARANX IGNOBILIS(20.5) EPINEPHELUS(10.5) EPINEPHELUS FLAVOLIMBATUS(10)

DATE	LOCAL TIME START	DURATION (MIN)	SNAPPER REEL NUMBER	NUMBER OF REELS	DEPTH (METER; MIN/MAX)	POSITION		TOTAL CATCH (KG)	SPECIES
						SOUTH ° ' "	EAST ° ' "		
23-2	10.30	60	1651	4	20-30	02 28	40 48	4.7	LUTJANUS SANGUINEUS(4.7)
24-2	07.30	60	1652	4	45-50	02 31	40 47	28.4	LUTJANUS SANGUINEUS(23.5) EPINEPHELUS DIACANTHUS(1.4) CEPHALOPHOLIS MINIATUS(2) EPINEPHELUS AREOLATUS(1.5)
26-2	12.40	50	1653	4	78-90	02 36	40 53	7.1	LETHRINUS NEBULOSUS(3) EPINEPHELUS DIACANTHUS(4.1)
26-2	14.30	10	1654	4	85-90	02 34	40 53	0	
26-2	15.30	40	1655	4	-	02 35	40 57	0	
26-2	17.20	20	1656	4	75-80	02 36	40 55	0	
27-2	07.30	40	1657	4	80-100	02 33	40 49	0	
27-2	08.40	40	1658	4	90-110	02 33	40 51	0	
27-2	11.20	30	1659	4	125-130	02 48	40 47 5	0	
21-3	13.30	30	1851	4	30-45	02 36 5	40 42	0	
21-3	16.30	30	1852	4	75-90	02 27 5	40 58	14	PRISTIPOMOIDES TYPUS(13.4) CEPHALOPHOLIS MINIATUS(0.6)
22-3	17.00	60	1853	4	65-75	02 10	41 13 5	0	
23-3	11.00	70	1854	4	28-35	02 15	41 08	11.2	PLECTORHYNCHUS PICTUS(3.4) LUTJANUS SANGUINEUS(4.6) LETHRINUS MINIATUS(3.2)



DATE	LOCAL TIME START	DURA TION (MIN)	SNAPPER REEL NUMBER	NUMBER OF REELS	DEPTH (METER; MIN/MAX)	POSITION		TOTAL CATCH (KG)	SPECIES
						SOUTH ° ' "	EAST ° ' "		
23-3	17.05	60	1855	4	90-91	02 35	40 56 5	33.7	LETHRINUS(14.4) PRISTIPOMOIDES TYPUS(5.6) EPINEPHELUS DIACANTHUS(4.6) PRISTIPOMOIDES(9.1)
23-3	18.40	65	1856	4	85-90	02 34	40 53	9.2	SHARKS(9.2)
25-3	07.15	40	1857	4	85	02 34	40 52 5	36.8	LUTJANUS RIVULATUS(6.5) LETHRINUS(22.9) EPINEPHELUS DIACANTHUS(1.8) GYMNOCRANIUS GRISEUS(0.2) SHARK(5.4)
25-3	08.05	10	1858	4	80	02 32 5	40 51	0	
25-3	08.50	25	1859	4	63	02 31	40 47	0	
25-3	09.30	5	1860	4	25	02 30	40 45 5	0	
25-3	10.35	35	1861	4	50	02 34	40 43 5	16	LUTJANUS BOHAR(3.4) LUTJANUS SANGUINEUS (12.6)
25-3	11.55	15	1862	4	37	02 37	40 39	0	
25-3	17.15	80	1863	4	110	02 48 5	40 50	0	
24-8	08.52	60	2451	4	26-35	02 06 5	41 15	1.5	EPINEPHELUS AREOLATUS(1.5)
24-8	11.53	60	2452	4	36-40	02 15 5	41 07 5	0	
2-10	12.04	38	2651	2	11-14	04 40 5	39 25 5	0	
3-10	07.25	30	2652	4	15-32	04 39	39 27	0	
3-10	16.30	45	2653	4	25-40	04 14 5	39 37	0	
4-10	11.10	20	2654	4	40-60	03 57 5	39 47	0	

DATE	LOCAL TIME START	DURA TION (MIN)	SNAPPER REEL NUMBER	NUMBER OF REELS	DEPTH (METER; MIN/MAX)	POSITION		TOTAL CATCH (KG)	SPECIES
						SOUTH _° _' _"	EAST _° _' _"		
4-10	15.15	30	2655	4	25-50	03 39 5	139 53 5	0	
6-10	12.55	10	2656	4	40-45	03 22 9	40 05 5	0	
7-10	08.16	20	2657	4	25-45	03 24	40 08 5	0.6	-
7-10	08.45	65	2658	4	25-47	03 23	40 08	6.1	-
7-10	10.18	102	2659	4	35-60	03 22 5	40 05 5	5.8	-
7-10	12.30	35	2660	4	50-65	03 22	40 02 5	0	
7-10	14.08	30	2661	4	40-80	03 25	40 09	2.5	-
8-10	07.25	20	2662	4	12-25	03 14	40 11	0	
8-10	10.01	10	2663	2	55-55	03 03	40 17 5	0	
8-10	12.02	20	2664	4	45-48	03 09	40 14	0.8	SHARK(0.8)
8-10	14.31	20	2665	4	75-85	03 24 5	40 10	0	
8-11	11.52	60	2851	4	70-90	02 32 5	40 52	9.4	EPINEPHELUS GRAMMATOPHORUS(4.8) MONOTAXIS GRANDOCULIS(3.9) PRISTIPOMOIDES ARGYROGRAMMICUS(0.7)
8-11	14.15	55	2852	4	50-55	02 31 5	40 46	6.1	EPINEPHELUS AREOLATUS(5) PRISTIPOMOIDES ARGYROGRAMMICUS(1.8)
8-11	15.30	10	2853	4	35-50	02 33	40 44 5	5.0	EPINEPHELUS FLAVOCAERULEUS(5.0)

DATE	LOCAL TIME START	DURA TION (MIN)	SNAPPER REEL NUMBER	NUMBER OF REELS	DEPTH (METER; MIN/MAX)	POSITION		TOTAL CATCH (KG)	SPECIES
						SOUTH ° ' "	EAST ° ' "		
8-11	15.50	40	2854	4	55-75	02 34	40 45	15.2	EPINEPHELUS AREOLATUS(1.9) EPINEPHELUS TAUVINA(2.7) SPARUS MAJOR(3.2) DULES TAENTURUS(4.9) CEPHALOPHOLIS(2.5)
9-11	08.01	60	2855	2	70-80	02 26	40 54 5	52.2	EPINEPHELUS TAUVINA(41.8) LUTJANUS RIVULATUS(7.2) POMADASYS OPERCULARIS(3.2)
9-11	12.30	60	2856	4	30-45	02 15	40 08 5	13.3	EPINEPHELUS AREOLATUS(4.8) LETHRINUS MINIATUS(5.1) CEPHALOPHOLIS(2.2) SUFFLAMEN CAPISTRATUS(1.2)

KEN/74/023 "OFFSHORE TRAWLING SURVEY"  
R/V UJUZI / FAO 29  
DATA OF FISHING OPERATIONS IN KENYAN WATERS DURING 1981  
SNAPPER REEL STATIONS

DATE	LOCAL TIME START	DURATION (MIN)	SNAPPER REEL NUMBER	NUMBER OF REELS	DEPTH (METER; MIN/MAX)	POSITION		TOTAL CATCH (KG)	SPECIES (TOTAL CATCH KG)
						SOUTH ° ' "	EAST ° ' "		
22-1	15.50	15	3151	2	70	02 30	40 57 5	0	
22-1	17.15	10	3152	2	60	02 29	40 49	0	
23-1	07.55	60	3153	4	50-65	02 33	40 44 5	17.4	EPINEPHELUS AREOLATUS(2.7) SHARK(3) LUTJANUS SANGUINEUS(9) EPINEPHELUS (1.9) LETHRINUS LENTJAN(0.5) LETHRINUS(0.3)
23-1	09.10	20	3154	4	50-55	02 32	40 45	0	
24-1	15.15	30	3155	4	50-70	02 29 5	40 50	15.2	LUTJANUS SANGUINEUS(13.8) CEPHALOPHOLIS SONNERATI(1.4)
23-2	08.55	60	3351	4	85-95	02 29	40 58	17.2	LETHRINUS MINIATUS(6.8) APHAREUS(8.3) EPINEPHELUS GRAMMATOPHORUS(2.1)
24-2	13.15	15	3352	4	60-65	02 06	41 16 5	0	

ANNEX 3 : RECORDED PRIVATE HANDLINE FISHING RESULTS OF  
R/V UJUZI CREW MEMBERS FISHING MAINLY IN  
THE EVENINGS AND SOME DURING THE NIGHT AT ANCHORAGE

CRUISE	DATE	POSITION		DEPTH METERS	TOTAL CATCH (KGS)	SPECIES	NO WEIGHT	
		SOUTH	EAST					KGS
7903B	4-5 APRIL	01°42'	41°34'	50	74.7	LUTJANUS SANGUINEUS	10	25.2
						L. SEBAE	2	3.6
						L. RIVULATUS	2	12.9
						LETHRINUS MINIATUS	3	6.0
						L. NEBULOSUS	2	4.4
						EPINEPHELUS SP	2	7.0
						E. TAUVINA	1	15.0
						SPHYRAENA JELLO	1	0.6
						CORYPHAENA	1	-
						SHARK	1	-
7903B	5-6 APRIL	02°03'	41°17'	20-30	13.0	SPHYRAENA JELLO	1	0.2
						ARIUS SAGOR	2	5.8
						THERAPON PUTA	41	7.0
7903B	6 APRIL	02°20'	40°51'	20-30	5.6	EPINEPHELUS TAUVINA	2	3.2
						ARIUS SAGOR	2	1.2
						SHARKS	1	1.2
7905	21-22 MAY	02°58'	40°14'	10-20	7.4	SPHYRAENA BARACUDA	6	2.0
						ARIUS SAGOR	1	1.4
						SCOMEROMORUS COMMERSON	1	4.0
7905	22 MAY	03°01'	40°19'	TROLLING OFF RAS N'GOMENI		CORYPHAENA HIPPIRUS	1	-
						YELLOW FIN TUNA	1	5.0
7909	11-12 SEPT	02°26'	40°47'	7	51.0	EPINEPHELUS TAUVINA	3	44.0
						LOPOTES SURINAMENSIS	1	7.0
8014	25-26 JAN	02°40'	40°30'	20	16.0	ARIUS SAGOR	6	15.4
						SPHYRAENA JELLO	2	0.6
8024	24-25 AUG	02°26'	40°45'	7	29.00	EPINEPHELUS TAUVINA	2	29.0
8028	9-10 NOV	01°56'	41°22'	20	162.9	EPINEPHELUS TAUVINA	11	101.5
						E. AREOLATUS	3	2.8
						LUTJANUS RIVULATUS	3	16.0
						L. BOHAR	2	10.1
						PINJALO PINJALO	4	4.2
						LETHRINUS NEBULOSUS	2	2.6
						POMADASYD OPERCULARIS	1	2.2
						CARAŦX SP	1	3.2
						SCOMBEROMORUS COMMERSON	2	18.5
						CEPHALOPHOLIS	1	1.8

... / ...

ANNEX 3 - CONT.

CRUISE	DATE	POSITION		DEPTH METERS	TOTAL CATCH (KGS)	SPECIES	NO	WEIGHT KGS
		SOUTH	EAST					
8131	23-24 JAN	RAS TENEWIATI NORTH KENYA BANK		10	19.9	EPINEPHELUS TAUVINA LUTJANUS RIVULATUS DREPANE EPINEPHELUS SP	2 1 1 1	6.6 7.0 3.3 3.0
8133	23-24 FEBR	01°54'	41°23'	25	0	-		
8133	25-26 FEBR	MALINDI MAMBRUI		22	66.0	ARIUS SP EPINEPHELUS TAUVINA E. SP PLECTORHYNCHUS PICTUS LUTJANUS RIVULATUS L. ARGENTIMACULATUS	6 2 3 1 1 1	18 26 12.8 2.6 4.2 2.0
8135	24-25 MARCH	MALINDI		34	21.9	SHARKS SPHYRAENA SCOMBEROMORUS		12.0 3.4 6.5
8136	4-5 APRIL	RAS TENEWIATI		7	21.5	EPINEPHELUS SP SPHYRAENA SP RAY	2 2 1	7.0 2.5 12.0
8136	5 APRIL	LAMU HARBOUR		8	5.0	ARIUS SP	2	5.0
8136	6 APRIL	SNAPPER REEL OFF LAMU		-	2.4	THUNNUS THUNNUS	1	2.4
8136	6-7 APRIL	MANDA BAY LAMU ARCHIPELAGO		10	15.0	ARIUS SAGOR POMADASYS OPERCULARIS CARANX LUTJANUS SANGUINEUS	3 1 1 2	6.1 2.5 4.7 2.1
8136	8-9 APRIL	RAS N'COMENI		10	27	ARIUS SAGOR SHARKS POMADASYS OPERCULARIS SPHYRAENA OBTUSATA	4 6 1 2	15.0 7.0 3.5 1.5

DATE	LOCAL TIME START	DURA TION (MIN)	SNAPPER REEL NUMBER	NUMBER OF REELS	DEPTH (METER; MIN/MAX)	SOUTH ° ' "	EAST ° ' "	TOTAL CATCH (KG)	SPECIES
9-11	08.01	60	2855	2	70-80	02 26	40 54 5	52.2	EPINEPHELUS TAUVINA(41.8) LUTJANUS RIVULATUS(7.2) POMADASYS OPERCULARIS(3.2)
9-11	12.30	60	2856	4	30-45	02 15	40 08 5	13.3	EPINEPHELUS AREOLATUS(4.8) LETHRINUS MINIATUS(5.1) CEPHALOPHOLIS(2.2) SUFFLAMEN CAPISTRATUS(1.2)