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STATISTICAL SURVEY OF LAS PALMAS BASED INTERNATIONAL TRAWLERS FOR 1984

by

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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TABLE OF CONTENTS

		Page
1.	INTRODUCTION	1
2.	METHODS	1
	2.1 Coverage	1
	2.2 Data collection	2
	2.3 Correction of effort data	2
	2.4 Classification	2
	2.5 Processing and presentation	3
3.	RESULTS	3
	3.1 The fleet	3
	3.2 Total catches	4
	3.3 Catches and effort	4
	3.4 Catches and vessel size	4
	3.5 Monthly catches and effort	5
4.	ACKNOWLEDGEMENTS	5
5.	REFERENCES	6

TABLES

1.	Number of trawlers by flag country, 1979-1984	7
2.	Number of trawlers by GRT class, 1978-1984	8
3.	Number of trawlers by GRT class by flag country, 1984	8
4A & B	Catch and effort by country, 1984	9
5.	Catch per effort, 1978-1984	10
6A & B	Catches and CPUE by country, 1984	11-12
7A & B	Catches and CPUE by GRT class and by area, 1984	13-14
8A & B	Catch per effort per month, 1984	15-16
9A &B	Catch per effort per month by fishing area, 1984	17-18

FIGURES

1.	Number of trawlers by country, 1984	19
2.	Catch composition, 1984	20
3.	Total annual catches, major species, 1978-1984	21
4.	Catch per day by major species, 1978-1984	22
5.	Catch per day per GRT class, 1984	23
6.	Monthly catches by major species, 1984	24
7.	Monthly catches and effort, 1980-1984	25

Appendix. Survey Form 26

1. INTRODUCTION

The port of Las Palmas has long been used as a fishing base by international fleets, and consequently has developed into an international fish market which is of prime importance to West Africa. Vessels landing their catches at Las Palmas are mainly tuna vessels and trawlers. Of these two categories, CECAF is particularly concerned with catch and effort data of the trawlers, the collection of data on tuna vessels being the responsibility of the International Commission for the Conservation of Atlantic Tunas (ICCAT) based in Madrid (Spain).

The fleet of trawlers based in Las Palmas is composed of vessels from Spain, Korea, Morocco, Japan, Mauritania and USSR. Occasionally, vessels from countries such as Senegal, Ghana, Nigeria, Panama and others land their catches in Las Palmas. The inadequacy of catch and effort data provided by some major fishing countries has hampered the proper evaluation of fish stocks in the CECAF area. Several recommendations concerning the submission of proper catch and effort data by these countries have been made.

Realizing the difficulties encountered by the CECAF Working Party on Resources Evaluation and the ad hoc Working Groups in evaluating the major fish stocks in the northern zone of the CECAF area, Spain, at the Fifth Session of CECAF (Lomé, Togo, March 1977) offered to assign a technician to record the activities of the fleet based in Las Palmas, as a voluntary contribution to the CECAF Project.

As a result, data collection at Las Palmas started in February 1978 and has been continued until now. Results have been published by the CECAF Project as technical papers for the period February 1978 to February 1979 and for the years 1979 to 1983. This paper presents the results for 1984.

2. METHOD

2.1 Coverage

This survey aims to cover all Las Palmas based trawlers, plus those that land their catch occasionally, except those of Japan, Spain and USSR. The reason is that the official reporting of Spain and Japan to the FAO is detailed enough for stock assessment purposes. USSR trawlers, while based in Las Palmas, do not land their catches there.

Since November 1982, vessels fishing for bottom fish in Mauritanian waters have to land their catches in Nouadhibou and since June 1984 sell the catch subsequently to the Fish marketing Cooperation (SMCP). Such landings at Nouadhibou are not included in the survey.

2.2 Data collection

A form is used to collect the data on catch and effort. An example is attached as Appendix I. It is completed by one of the two assistants of the recorder, either by interviewing the captain of the arriving vessel or by obtaining information from other sources (shipping agents, customs).

It should be noted that when a trip is spread over more than one month, the total catch during the trip was recorded in the month of landing.

2.3 Correction of effort data

In practice, for about one third of the recorded trips, the duration of the trip is not specified on the form. Also in some cases, no record is kept of the exact day of departure of a vessel. With the aid of a bar chart detailing all trips of each vessel, and the assistance of Las Palmas based companies, these gaps have been filled in with an estimated number of fishing days. The number of fishing days was estimated from the number of days that a vessel was absent from the port of Las Palmas minus the estimated duration of travel to and from the fishing grounds and, in case of transhipment, the number of days needed to transfer the catch to another vessel at sea. In case of an incidental or first landing at Las Palmas, when no further information was available, the number of fishing days was estimated from the total catches and known effort of vessels of the same GRT class.

In many cases, it is not specified on the form if a trawler actually fished or was used as a carrier. Some vessels landed large amounts of fish within a few days or weeks of their last visit to the port. In such cases the vessel is assumed to be a carrier, and effort is estimated on the basis of the total catch.

As the main purpose of collecting and presenting the data is stock assessment, reliable effort data are of utmost importance. Therefore, starting from 1983, a code has been added to each form, indicating whether the effort has been estimated or not. In the present report, for the first time, the possibility of separating the data this way has been used.

2.4 Classification

Following the classification used in earlier reports, vessels are divided into the following GRT classes :

A : 0-249	D : 400-599
B : 250-309	E : 600-749
C : 310-399	F : 750-999

In this report, fishing areas are classified according to CECAF Statistical Divisions. Most fishing is done in areas 34.1.3 (Sahara coastal) and 34.3.1 (Cape Verde coastal). The subdivision of 34.1.3 into Dakhla and Cap Blanc, as used in earlier reports, has not been applied here, as the time series since 1978 is presently under revision. It is hoped that such data will be published at a later stage.

2.5 Processing and presentation

The data of the 1978 and 1979 surveys were processed manually, while the data of 1980 and 1982 were processed on a mainfraim IBM computer at the "Centre de Recherches Océanographiques de Dakar-Thiaroye" (CRODT). Computer programmes were written by the CECAF Analyst/Programmer. The data for 1983 and 1984 were processed on the Project's Apple IIe computer. Programme were written in Pascal language by the Project's Associate Expert Economist.

The programmes produced twenty basic Tables, on the basis of which Tables were prepared for this report, with the aid of an electronic spreadsheet. In order to comply with the needs of stock assessment methods, Tables are presented in a somewhat different format than before. Where possible, time series have been included enabling a comparison with former years.

Most Tables with 1984 figures are presented twice, one with all data included (A) and once including the estimated effort and related data (B). Tables including former years always include estimates.

3. RESULTS

3.1 The fleet

There has been a slight increase in the number of trawlers landing their catches in Las Palmas : 250 in 1984 against 239 in 1983 (Table 1, Figure 1). Countinuing the trend of the last few years, the Moroccan fleet increased in size by nearly 20%. The Mauritanian fleet landing in Las Palmas however, decreased strongly in size, presumably as a result of the Mauritanian fishery policy, which requires fish caught in Mauritanian waters to be landed (demersal) or to be transhipped (pelagic) in Nouadhibou. The decline in the number of Korean vessels appears to have stopped.

Until 1983 there was a gradual decline in the average size of trawlers, from 417 GRT in 1978 to 351 GRT in 1983. The 1984 value of 353 GRT is at the same level as in 1983 (Table 2). The largest increase in number of vessels is observed in the class of 205-309 and 310-399 GRT.

On average, the Korean fleet has the largest vessels (Table 3), although Morocco has a larger number of vessels in every size class, except 600-749 GRT.

3.2 Total catches

The total catches landed at Las Palmas increased from 137,387 mt in 1983 to 141,099 mt in 1984 (Table 4A). Of this total, 33% was Octopus, 25% Seabreams and 22% Cuttlefish (Figure 2). Total Cephalopod catches (80,786 mt) accounted for 57.5% of the overall total catches, against 59.5% in 1983.

Moroccan trawlers accounted for 65% of the total catch, Korean vessels took 27% and those of other flag countries the balance of 8%.

3.3 Catches and effort

After a decline in 1983, effort as expressed in the number of fishing days, increased again (Table 5). Overall catches per unit of effort however continued to decline, as well as the CPUE for most species, with the exception of Squid and Seabreams. It should be noted that for Table 5, there is no second Table excluding estimated effort data, as these are not yet available for the years 1978-1983. The evolution of total catches can be seen from Figure 3.

Catches and catches per unit of effort for each flag country in the two statistical areas are shown in Tables 6A and 6B. Korean vessel tend to concentrate their effort more in 34.3.1 (63%) while Moroccan vessels are limited in their operations to division 34.1.3.

On the whole, Octopus is best caught in 34.1.3 and Cuttlefish in 34.3.1. This conclusion does not alter if one excludes estimated effort (Table 6B).

The trend in total catches per day of fishing for all vessels is shown in Figure 4. The figure illustrates the decreasing overall catch rates since 1981.

3.4 Catches and vessel size

Total catches and catch per fishing day for each vessel class and fishing area are shown in Tables 7A and 7B. In area 34.1.3, catch rates of Octopus are high. Large differences however, exist between vessel sizes, the optimum size being 250-309 GRT. Larger vessels are less efficient.

Cuttlefish catch rates are the highest in 34.3.1, with again large differences between vessel sizes. In this case, the optimum size is 400-599 GRT, followed by the 250-309 GRT.

These conclusions change when estimated effort is excluded. Optimum vessel sizes for Octopus in 34.1.3 and Cuttlefish catch rates in 34.3.1 become 250-309 GRT in both cases.

The overall catches per fishing day for each vessel size class, in 1984, are shown in Figure 5. They can be seen to increase regularly with vessel size.

3.5 Monthly catches and effort

Monthly evolutions of fishing effort, catches and catch per day are presented in Tables 8A and 8B for all areas, and in 9A and 9B for each fishing area individually.

The monthly catch rates of Octopus in 1984 (only observed values, Table 8B) show two annual preaks : one in February to April, and one in September-October. Catch rates are lowest in May-July. Cuttlefish catches per unit of effort were the highest in the first six months of 1984 (500-600 kg/day), falling to a level of around 300 kg/day in August-September. Squid catch rates were highest in September-December 1984. The same general conclusions can be drawn from Table 9B.

It appears from Table 9B that the total catch rates (all species combined) in division 34.3.1 are 40% higher than in 34.1.3. The share in the total catch of division 34.3.1, however, is only 10%. Monthly catches are shown in Figure 6 and the development in monthly catches and effort over the years in Figure 7.

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Table 1 : Number of trawlers by flag country
Tableau 1 : Nombre de chalutiers par pays

	1978	1979	1980	1981	1982	1983	1984	
Korea	87	87	80	70	68	52	53	Coree
Morocco	11	37	66	65	114	130	155	Maroc
Libya	0	0	12	11	11	2	0	Lybie
Italy	0	0	6	4	5	4	0	Italie
Mauritania	0	0	7	41	59	26	15	Mauritanie
Ghana	3	2	1	2	2	7	3	Ghana
China (Taiwan)	4	4	0	0	1	1	0	Chine (Taiwan)
Faeroe Islands	0	0	0	2	0	0	0	Iles Faeroe
Greece	0	0	0	0	3	2	1	Grece
Cyprus	0	0	0	0	1	0	0	Chypre
Senegal	0	0	0	0	0	3	4	Senegal
Trinidad	0	0	0	0	0	2	0	Trinidad
Honduras	0	0	0	0	0	0	1	Honduras
Panama	0	0	0	0	0	10	18	Panama
Total	105	130	172	195	264	239	250	Total

Table 2 : Number of trawlers by GRT class
Tableau 2 : Nombre de chalutiers par classe de TJB

GRT	1978	1979	1980	1981	1982	1983	1984	TJB
0-249	0	2	9	22	43	46	43	0-249
250-309	30	44	50	69	84	55	64	250-309
310-399	50	54	73	65	80	88	92	310-399
400-599	6	9	11	14	23	25	26	400-599
600-749	10	11	12	13	13	14	13	600-749
750-999	9	10	17	12	21	11	12	750-999
Total	105	130	172	195	264	239	250	Total
Weighted Average GRT	417	403	404	366	363	351	353	Moyenne ponderee TJB

Table 3 : Number of trawlers by GRT class by flag country, 1984
Tableau 3 : Nombre de chalutiers par classe de TJB et par pays, 1984

	Korea	Morocco	Mauritania	Ghana	Others	Total	
0-249	0	39	0	1	3	43	0-249
250-309	8	40	4	2	10	64	250-309
310-399	27	48	10	0	7	92	310-399
400-599	7	15	1	0	3	26	400-599
600-749	7	6	0	0	0	13	600-749
750-999	4	7	0	0	1	12	750-999
Total	53	155	15	3	24	250	Total
Weighted Average GRT	444	328	345	228	335	353	Moyenne ponderee TJB

Table 4A : Catch and effort by country, 1984 ; Estimated effort figures included

Tableau 4A : Prises et effort par pays en 1984 ; Les efforts estimés compris

	Korea	Morocco	Mauritania	Ghana	Others	Total	
No. of trawlers	53	155	15	3	24	250	No. de chalutiers
No. of trips	270	715	31	9	57	1082	No. de sorties
No. of days fished	11010	34417	1206	535	2168	49336	No. jours de peche
No. of days per trip	41	48	39	59	38	46	Jours par sortie
No. of days/trawler	208	222	80	178	90	197	Jours par chalutier
Catches in mt							Prises en tonnes
Europilchard	4	2572	0	0	0	2576	Sardines Euro
Horse mackerel	312	1874	0	0	137	2323	Chinchard
Chub mackerel	0	637	0	0	0	637	Maq. Esp
Sea breams	10673	20824	819	114	2838	35268	Dorade
SE/MA hakes	8	12	0	0	0	20	Merlus SE/MA
Croaker	345	1067	50	0	90	1552	Capitaines
Pink shrimp	141	4	18	7	104	274	Crevette rose
Octopus	7277	36952	872	4	849	46056	Poulpe
Cuttlefish	12561	14377	422	1373	2181	30916	Seiche
Squid	391	3319	9	0	105	3824	Calmar
Others	6512	9619	256	147	1119	17653	Divers
Total Catches	38324	91259	2448	1645	7423	141099	Prises totales
	Coree	Maroc	Mauritanie	Ghana	Divers	Total	

Table 4B : Catch effort by country, 1984, Estimated effort figures excluded

Tableau 4B : Prises et effort par pays en 1984 ; Les efforts estimes exclus

	Korea	Morocco	Mauritania	Ghana	Others	Total	
No. of trips	57	613	0	3	21	694	No. de sorties
No. of days fished	3044	29803	0	101	960	33908	No. jours de peche
No. of days per trip	53	49	NA	34	46	49	Jours par sortie
Catches in mt							Prises en tonnes
Europilchard	2	435	0	0	0	437	Sardines Euro
Horse mackerel	126	1760	0	0	103	1989	Chinchard
Chub mackerel	0	543	0	0	0	543	Maq. Esp
Sea breams	3787	18971	0	37	1705	24500	Dorade
SE/MA hakes	0	11	0	0	0	11	Merlus SE/MA
Croaker	141	972	0	0	51	1164	Capitaines
Pink shrimp	14	2	0	3	4	23	Crevette rose
Octopus	3364	32731	0	0	412	36507	Poulpe
Cuttlefish	2106	11930	0	526	682	15244	Seiche
Squid	211	3009	0	0	71	3291	Calmar
Others	2897	8876	0	52	573	12398	Divers
Total Catches	12648	79240	0	618	3601	96107	Prises totales
	Coree	Maroc	Mauritanie	Ghana	Divers	Total	

Table 5 : Catch per effort, 1978-1984 - Estimated effort included

Tableau 5 : Prises par effort, 1978 - 1984; Les efforts estimés inclus pour 1983 et 1984

	1978	1979	1980	1981	1982	1983	1984	
No. of days fished	23926	26665	36915	39533	49539	42773	49336	No. jours de peche
Catches in mt								Prises en tonnes
Octopus	14147	9803	29871	49839	57115	46650	46056	Poulpe
Cuttlefish	24812	23824	28161	34714	36293	31947	30916	Seiche
Squid	9095	6305	6593	11135	5384	3174	3824	Calmar
Total cephalopods	48054	39932	64625	95688	98792	81771	80796	Total Cephalopods
Sea breams	12437	24035	14099	25654	32586	21592	35268	Dorade
Others	28516	28193	31075	32675	45020	34024	25035	Divers
Total Catches	89057	92160	110599	154017	176400	137387	141099	Prises totales
Catch per day in kg								Prise par jour en kg
Octopus	591	368	809	1261	1153	1091	934	Poulpe
Cuttlefish	1037	893	763	878	733	747	627	Seiche
Squid	380	236	179	282	109	74	78	Calmar
Average cephalopods	2008	1498	1751	2420	1994	1912	1638	Moyenne Cephalopods
Sea breams	522	901	434	649	658	505	715	Dorade
Others	1192	1057	842	827	909	795	507	Divers
Total catch per day (kg)	3722	3456	2996	3896	3561	3212	2860	Prise total par jour (kg)

Table 6A : Catches and CPUE by country in 1984 ; Estimated effort figures included

Tableau 6A : Captures et CPUE par pays en 1984 ; Les efforts estimés sont inclus

				34.1.3	34.3.1			
	Korea	Morocco	Mauritania	Total	Korea	Mauritania	Total	
No. of days fished	4044	34417	1002	40367	6966	204	8969	No. jours de peche
Catches in mt								Prises en tonnes
Octopus	3668	36952	688	41728	3709	186	4328	Poulpe
Cuttlefish	3351	14379	308	19101	9210	114	11815	Seiche
Squid	232	3319	9	3623	159	0	201	Calmar
Total cephalopods	7251	54650	1005	64452	13078	300	16344	Cephalopodes total
Sea breams	4188	20824	480	27094	6465	331	8174	Dorade
Others	2442	15765	255	19056	4880	69	5981	Divers
Total Catches	13881	91259	1740	110600	24443	700	30499	Prises totales
Catch per day in kg								Prise par jour en kg
Octopus	907	1074	687	1034	532	912	483	Poulpe
Cuttlefish	829	418	307	473	1322	559	1317	Seiche
Squid	57	96	9	90	23	0	22	Calmar
Total cephalopods	1793	1500	1003	1597	1877	1471	1822	Cephalopodes total
Sea breams	1036	605	487	671	931	1623	911	Dorade
Others	604	459	254	472	701	338	667	Divers
Total all species	3432	2652	1745	2740	3509	3431	3400	Total general
	Coree	Maroc	Mauritanie	Total	Coree	Mauritanie	Total	

Table 6B : Catches and CPUE by country in 1984 ; Estimated effort figures excluded

Tableau 6B : Captures et CPUE par pays en 1984 ; Les efforts estimés sont exlus

				34.1.3	34.3.1			
	Korea	Morocco	Mauritania	Total	Korea	Mauritania	Total	
No. of days fished	1481	29803	0	31560	1563	0	2340	No. Jours de peche
Catches in mt								Prises en tonnes
Octopus	1769	32731	0	34684	1595	0	1023	Poulpe
Cuttlefish	610	11930	0	12874	1296	0	2370	Seiche
Squid	144	3009	0	3190	67	0	101	Calmar
Total cephalopods	2723	47670	0	50748	2958	0	4294	Cephalopodes total
Sea breams	2034	18971	0	21850	1753	0	2650	Dorade
Others	1398	12599	0	14188	1782	0	2377	Divers
Total Catches	6155	79240	0	85786	6493	0	9321	Prises totales
Catch per day in kg								Prise par jour en kg
Octopus	1194	1098		1099	1020		776	Poulpe
Cuttlefish	547	400		408	829		1009	Seiche
Squid	97	101		101	43		43	Calmar
Total cephalopods	1839	1600		1608	1893		1829	Cephalopode total
Sea breams	1373	637		692	1122		1129	Dorade
Others	944	423		450	1140		1012	Divers
Average all species	4155	2659		2750	4154		3970	Total general
	Coree	Maroc	Mauritanie	Total	Coree	Mauritanie	Total	

Table 7A : Catches and CPUE by GRT classes and by area in 1984 ; Estimated effort figures included

Tableau 7A : Prises et CPUE par classe TJB et par zone en 1984 ; Les efforts sont inclus

AREA 34.1.3								ZONE 34.1.3
	0-249	250-309	310-399	400-599	600-749	750-999	Total	
No. of days fished	8140	10291	12736	5088	2008	2096	40367	No. jours de peche
Catches in mt								Prises en tonnes
Octopus	8236	12340	13668	4750	893	1841	41728	Poulpe
Cuttlefish	1436	3598	7692	4074	945	1356	19101	Seiche
Squid	304	802	1201	839	134	343	3623	Calmar
Total cephalopods	9976	16740	22561	9663	1972	3540	64452	Total Cephalopode
Sea breams	172	3707	8303	7463	3364	6005	27094	Dorade
Others	422	2528	6164	2958	4159	2823	19054	Divers
Total Catches	10570	22775	37100	20084	9495	10368	110600	Prises totales
Catch per day in kg								Prise par jour en kg
Octopus	1011	1199	1073	934	445	878	1034	Poulpe
Cuttlefish	176	350	604	801	471	647	473	Seiche
Squid	37	78	94	165	67	164	90	Calmar
Total cephalopods	1224	1627	1771	1899	982	1689	1597	Cephalopode total
Sea breams	21	360	652	1467	1675	1911	671	Dorade
Others	52	246	484	581	2071	1347	472	Divers
Total all species	1297	2213	2914	3947	4729	4947	2740	Total general
AREA 34.3.1								ZONE 34.3.1
No. of days fished	440	1748	3596	1474	1332	359	8969	No. jours de peche
Catches in mt								Prises en tonnes
Octopus	2	550	2167	196	1268	145	4328	Poulpe
Cuttlefish	396	2597	4121	2614	1625	462	11815	Seiche
Squid	0	35	72	54	32	8	201	Calmar
Total cephalopods	398	3182	6360	2864	2925	615	16344	Total Cephalopode
Sea breams	303	1195	2963	1616	1595	502	8174	Dorade
Others	42	1099	2555	670	1335	280	5981	Divers
Total Catches	743	5476	11870	5150	5855	1397	30499	Prises totales
Catch per day in kg								Prise par jour en kg
Octopus	5	311	603	133	952	404	483	Poulpe
Cuttlefish	900	1469	1146	1773	1220	1287	1317	Seiche
Squid	0	20	20	37	24	22	22	Calmar
Total cephalopods	905	1800	1769	1943	2196	1713	1822	Cephalopode total
Sea breams	689	676	824	1096	1197	1398	911	Dorade
Others	95	622	711	455	1002	780	667	Divers
Total all species	1689	3097	3303	3494	4396	3891	3400	Total general

Table 7B : Catches and CPUE by GRT class and by area in 1984 ; Estimated effort figures excluded

Tableau 7B : Prises et CPUE par classe TJB et par zone en 1984 : Les efforts estimés sont exclus

AREA 34.1.3								ZONE 34.1.3
	0-249	250-309	310-399	400-599	600-749	750-999	Total	
No. of days fished	6744	8581	8754	3818	1567	2096	31560	No. jours de peche
Catches in mt								Prises en tonnes
Octopus	7098	10603	10352	3910	980	1841	34684	Poulpe
Cuttlefish	1160	2623	4359	2617	759	1356	12874	Seiche
Squid	26	733	984	739	131	343	2956	Calmar
Total cephalopods	8284	13959	15695	7266	1770	3540	50514	Total Cephalopode
Sea breams	104	2657	6197	5730	3157	4005	21850	Dorade
Others	555	2014	4868	2257	1905	2823	14422	Divers
Total Catches	8943	18630	26760	15253	6832	10368	86786	Prises totales
Catch per day in kg								Prise par jour en kg
Octopus	1052	1236	1183	1024	562	878	1099	Poulpe
Cuttlefish	172	306	498	685	484	647	408	Seiche
Squid	4	85	112	194	84	164	94	Calmar
Total cephalopods	1228	1627	1793	1903	1130	1689	1601	Cephalopode total
Sea breams	15	310	708	1501	2015	1911	692	Dorade
Others	82	235	556	591	1216	1347	457	Divers
Total all species	1326	2171	3057	3995	4360	4947	2750	Total general

AREA 34.3.1								ZONE 34.3.1
No. of days fished	185	457	739	230	664	65	2348	No. jours de peche
Catches in mt								Prises en tonnes
Octopus	0	165	567	65	926	100	1823	Poulpe
Cuttlefish	166	627	824	246	471	36	2370	Seiche
Squid	0	20	25	21	21	6	101	Calmar
Total cephalopods	166	820	1416	332	1418	142	4294	Total Cephalopode
Sea breams	296	376	580	517	783	98	2650	Dorade
Others	13	406	834	222	828	74	2377	Divers
Total Catches	475	1602	2830	1071	3029	314	9321	Prises totales
Catch per day in kg								Prise par jour en kg
Octopus	0	361	767	273	1395	1538	776	Poulpe
Cuttlefish	897	1372	1115	1034	709	554	1009	Seiche
Squid	0	61	34	88	32	92	43	Calmar
Total cephalopods	897	1794	1916	1395	2136	2185	1829	Cephalopode total
Sea breams	1600	823	785	2172	1179	1508	1129	Dorade
Others	70	888	1129	933	1247	1138	1012	Divers
Total all species	2569	3505	3829	4500	4562	4831	3970	Total general

Table 8A : Catches and CPUE per month in 1984 ; Estimated effort figures excluded

Tableau 8A : Prises et CPUE par mois en 1984 ; Les efforts estimés sont exclus

	Number of days	Catches in mt: Cephalopods: Octopus	Cuttlefish	Squid	Total	Seabreams	Total	Catch per day in kg: Cephalopods: Octopus	Cuttlefish	Squid	Total	Seabreams	Total	
January	2946	2734	1775	307	4816	3119	9674	928	603	104	1635	1059	3284	Janvier
February	3368	3670	2267	189	6126	2041	9856	1090	673	56	1819	606	2926	Fevrier
March	3595	3905	2258	184	6347	1755	10228	1086	628	51	1766	488	2845	Mars
April	4215	4040	3404	206	7650	2739	12671	958	808	49	1815	650	3006	Avril
May	4754	3327	4843	185	8360	2855	13593	700	1020	39	1759	601	2859	Mai
June	4737	3176	4330	206	7712	3325	13371	670	914	43	1628	702	2823	Juin
July	3664	2561	2394	180	5135	2397	8838	699	653	49	1401	654	2412	Juillet
August	4441	4088	2368	306	6762	3345	11900	921	533	69	1523	753	2680	Aout
September	4044	4932	1644	463	7039	2959	12257	1220	407	114	1741	732	3031	Septembre
October	5206	6365	2014	677	9056	2867	13697	1223	387	130	1740	551	2631	Octobre
November	3108	2775	1514	295	4584	2567	8869	893	487	95	1475	826	2854	Novembre
December	5258	4483	2100	626	7209	5299	14145	853	399	119	1371	1008	3071	Decembre
Total	49336	46056	30916	3824	80796	35268	141099							Total
Average								934	627	78	1638	715	2860	Moyenne
	Nombre de jours	Cephalopodes: Poulpe	Seiche	Calmar	Total	Dorade	Total	Cephalopodes: Poulpe	Seiche	Calmar	Total	Dorade	Total	
		Prises en tonnes						Prises par jour en kg						

Table 8B : Catches and CPUE per month in 1984 ; Estimated effort figures excluded

Tableau 8B : Prises et CPUE par mois en 1984 ; Les efforts sont exclus

	Catches in mt							Catch per day in kg						
		Cephalopods						Cephalopods						
	Number of days	Octopus	Cuttlefish	Squid	Total	Seabreams	Total	Octopus	Cuttlefish	Squid	Total	Seabreams	Total	
January	2138	2113	1185	244	3542	2246	7189	988	554	114	1657	1051	3362	Janvier
February	2171	2834	1306	116	4256	1127	6613	1305	602	53	1960	519	3046	Fevrier
March	2682	3111	1766	167	5044	1501	7857	1160	658	62	1881	560	2930	Mars
April	2542	3007	1391	179	4577	1828	7645	1183	547	70	1801	719	3007	Avril
May	2540	2369	1357	150	3876	1557	6296	933	534	59	1526	613	2479	Mai
June	3339	2767	2112	165	5044	2434	8916	829	633	49	1511	729	2670	Juin
July	2521	2112	1050	175	3337	1504	5579	838	417	69	1324	597	2213	Juillet
August	2921	3151	889	287	4327	1983	7337	1079	304	98	1481	679	2512	Aout
September	2874	3747	1061	424	5232	2343	9469	1304	369	148	1820	815	3295	Septembre
October	3819	4918	951	563	6432	1956	9607	1288	249	147	1684	512	2516	Octobre
November	2057	2261	729	245	3235	1492	5856	1099	354	119	1573	725	2847	Novembre
December	4304	4117	1447	576	6140	4551	13243	957	336	134	1427	1052	3193	Decembre
Total	33908	36507	15244	3291	55042	24500	76107							Total
Average								1077	450	97	1623	723	2834	Moyenne
	Nombre de jours	Poulpe	Seiche	Calmar	Total	Dorade	Total	Poulpe	Seiche	Calmar	Total	Dorade	Total	
		Cephalopodes						Cephalopodes						
		Prises en tonnes						Prises par jour en kg						

Table 9A : Catches and CPUE by area per month in 1984 ; Estimated effort figures included

Tableau 9A : Prises et CPUE par zone par mois en 1984 ; Les efforts estimés sont inclus

	Number of days	Catches in mt: Cephalopods: Octopus	Cuttlefish	Squid	Total	Seabreams	Total	Catch per day in kg: Cephalopods: Octopus	Cuttlefish	Squid	Total	Seabreams	Total	
AREA 34.1.3														**ZONE 34.1.3**
January	2911	2734	1719	307	4760	3098	9591	939	591	105	1635	1064	3295	Janvier
February	2745	3464	1647	172	5283	1496	7939	1262	600	63	1925	545	2892	Fevrier
March	2872	3396	1520	173	5089	1259	8055	1182	529	60	1772	438	2805	Mars
April	3217	3495	1767	165	5427	1875	8892	1086	549	51	1687	583	2764	Avril
May	3818	2998	2773	179	5950	2170	10001	785	726	47	1558	568	2619	Mai
June	3945	2944	2878	177	5999	2800	10531	746	730	45	1521	710	2669	Juin
July	3007	2143	1656	175	3974	1665	6570	713	551	58	1322	554	2192	Juillet
August	3511	3761	1365	304	5450	2270	8908	1071	394	87	1552	647	2537	Aout
September	3383	4510	825	459	5794	2265	9918	1333	244	136	1713	670	2932	Septembre
October	4469	5812	1047	853	7512	3415	11221	1301	234	146	1681	541	2533	Octobre
November	2230	2383	623	280	3286	1521	5786	1069	279	126	1474	682	2595	Novembre
December	4259	4088	1241	599	5928	4259	13068	960	296	136	1392	1000	3068	Decembre
Total	40367	41728	19101	3623	64452	27094	110600							Total
Average								1034	473	90	1597	671	2740	Moyenne
AREA 34.3.1														**ZONE 34.3.1**
January	35	0	56	0	56	21	83							Janvier
February	623	206	620	17	843	545	1517	331	995	27	1353	875	3077	Fevrier
March	723	509	738	11	1256	496	2173	704	1021	15	1740	686	3006	Mars
April	998	545	1637	41	2223	864	3779	546	1640	41	2227	866	3787	Avril
May	936	329	2075	6	2410	685	3592	351	2217	6	2575	732	3838	Mai
June	792	232	1452	29	1713	525	2840	293	1833	37	2163	663	3586	Juin
July	657	418	738	5	1161	732	2948	636	1123	8	1767	1114	3422	Juillet
August	930	327	983	2	1312	732	2992	352	1057	2	1411	787	3217	Aout
September	661	422	819	4	1245	1075	2330	638	1239	6	1884	1626	3539	Septembre
October	737	553	967	24	1544	694	2376	750	1312	33	2095	942	3224	Octobre
November	878	392	891	15	1298	449	3092	446	1015	17	1478	511	3511	Novembre
December	999	395	839	47	1281	1046	3027	395	840	47	1282	1047	3080	Decembre
Total	8969	4328	11815	201	16344	7864	30499							Total
Average								483	1317	22	1822	877	3400	Moyenne
	Nombre de jours	Cephalopodes: Poulpe	Seiche	Calmar	Total	Dorade	Total	Cephalopodes: Poulpe	Seiche	Calmar	Total	Dorade	Total	
		Prises en tonnes						Prises par jour en kg						

Table 9B : Catches and CPUE by area per month in 1984 ; Estimated effort figures excluded

Tableau 9B : Prises et CPUE par zone par mois en 1984 ; Les effort estimés sont exclus

	Number of days	Catches in mt: Cephalopods: Octopus	Cuttlefish	Squid	Total	Seabreams	Total	Catch per day in kg: Cephalopods: Octopus	Cuttlefish	Squid	Total	Seabreams	Total	
AREA 34.1.3														ZONE 34.1.3
January	2133	2113	1185	244	3542	2246	7189	988	554	114	1657	1051	3362	Janvier
February	2006	2743	1048	111	3902	931	5783	1367	522	55	1945	464	2883	Fevrier
March	2227	2753	1279	158	4190	1145	6260	1236	574	71	1881	514	2811	Mars
April	2227	2672	1231	148	4051	1461	6393	1200	553	66	1819	656	2871	Avril
May	2463	2340	1313	148	3801	1452	6046	950	533	60	1543	590	2455	Mai
June	3136	2662	1000	161	4623	2290	8129	849	574	51	1474	730	2592	Juin
July	2521	2112	1050	175	3337	1504	5579	838	417	69	1324	597	2213	Juillet
August	2765	3149	819	287	4254	1734	6895	1131	294	103	1527	623	2476	Aout
September	2578	2346	705	422	4473	2007	8149	1298	273	164	1735	779	3161	Septembre
October	2719	4823	857	555	6235	1901	9243	1297	230	149	1677	511	2485	Octobre
November	1918	2163	442	243	2848	1196	4892	1190	243	134	1567	658	2691	Novembre
December	3942	3808	1146	538	5492	3983	12229	966	291	136	1393	1010	3102	Decembre
Total	31[illegible]	34[illegible]	12974	3190	50748	21850	86766							Total
Average								1099	408	101	1608	692	2750	Moyenne
AREA 34.3.1														ZONE 34.3.1
January	0	0	0	0	0	0	0							Janvier
February	135	91	258	5	354	196	630	552	1564	30	2145	1188	5030	Fevrier
March	455	358	487	9	854	356	1592	727	1070	20	1877	782	3510	Mars
April	315	335	160	31	526	362	1252	1063	508	98	1670	1165	3975	Avril
May	77	29	44	2	75	105	250	377	571	26	974	1364	3247	Mai
June	203	105	312	4	421	144	788	517	1537	20	2074	709	3882	Juin
July	0	0	0	0	0	0	0							Juillet
August	136	2	71	0	73	249	442	15	522	0	537	1831	3250	Aout
September	296	401	356	2	759	336	1326	1355	1203	7	2564	1135	4459	Septembre
October	100	95	94	8	197	55	364	950	940	80	1970	550	3640	Octobre
November	239	98	287	2	387	296	964	410	1201	8	1619	1238	4033	Novembre
December	362	309	301	38	648	546	1514	854	831	105	1790	1508	4132	Decembre
Total	2348	1823	2370	101	4294	2650	9321							Total
Average								776	1009	43	1829	1129	3970	Moyenne
	Nombre de jours	Poulpe	Seiche	Calmar	Total	Dorade	Total	Poulpe	Seiche	Calmar	Total	Dorade	Total	
		Cephalopodes						Cephalopodes						
		Prises en tonnes						Prises par jour en kg						

Figure 1 : NUMBER OF TRAWLERS

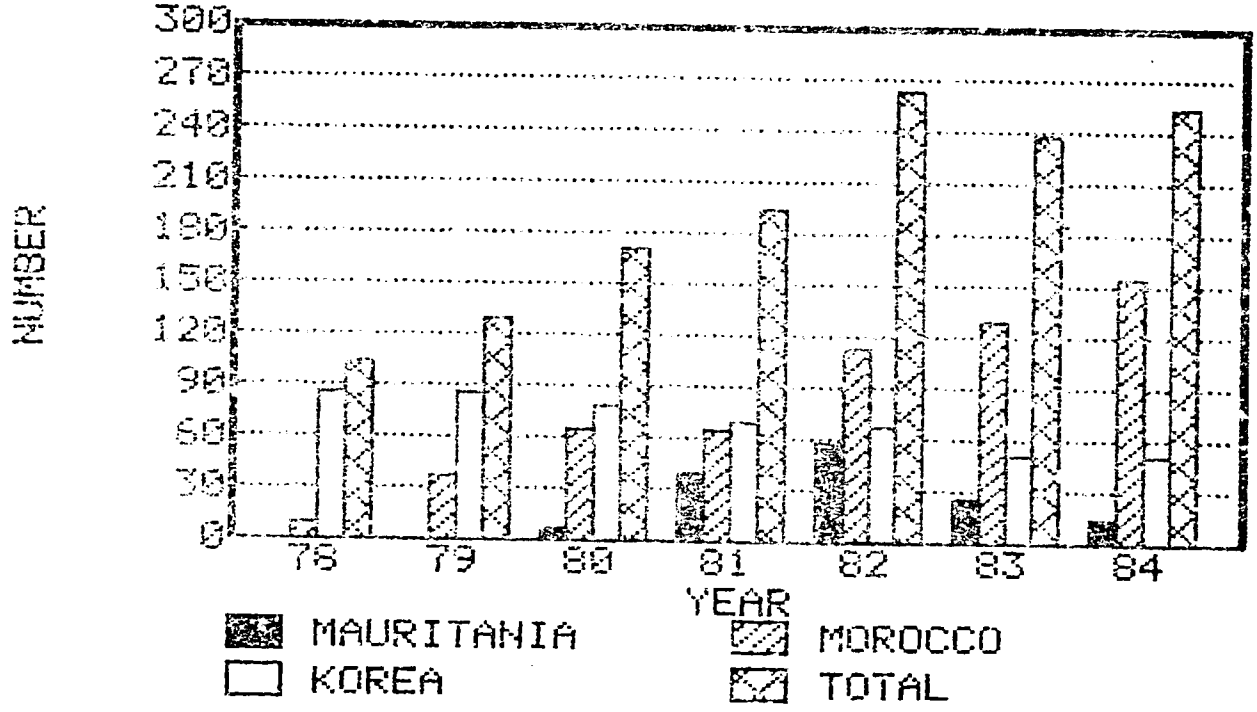
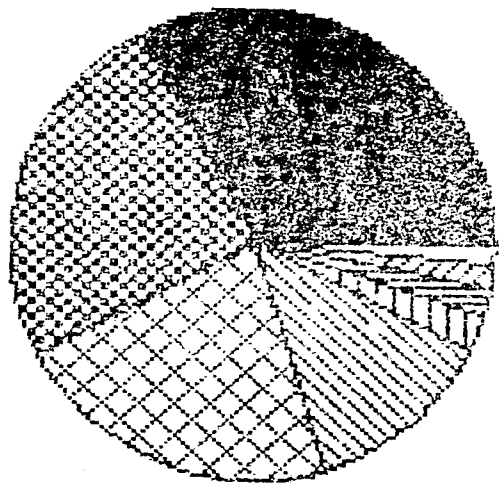


Figure 2 : CATCH COMPOSITION 1984



32.80%
OCTOPUS

25.11%
SEA BREAMS

22.01%
CUTTLEFISH

12.78%
OTHERS

2.72%
SQUID

1.83%
PILCHARD

1.65%
MACKERELS

1.10%
CROACKERS

Figure 3 : TOTAL ANNUAL CATCHES

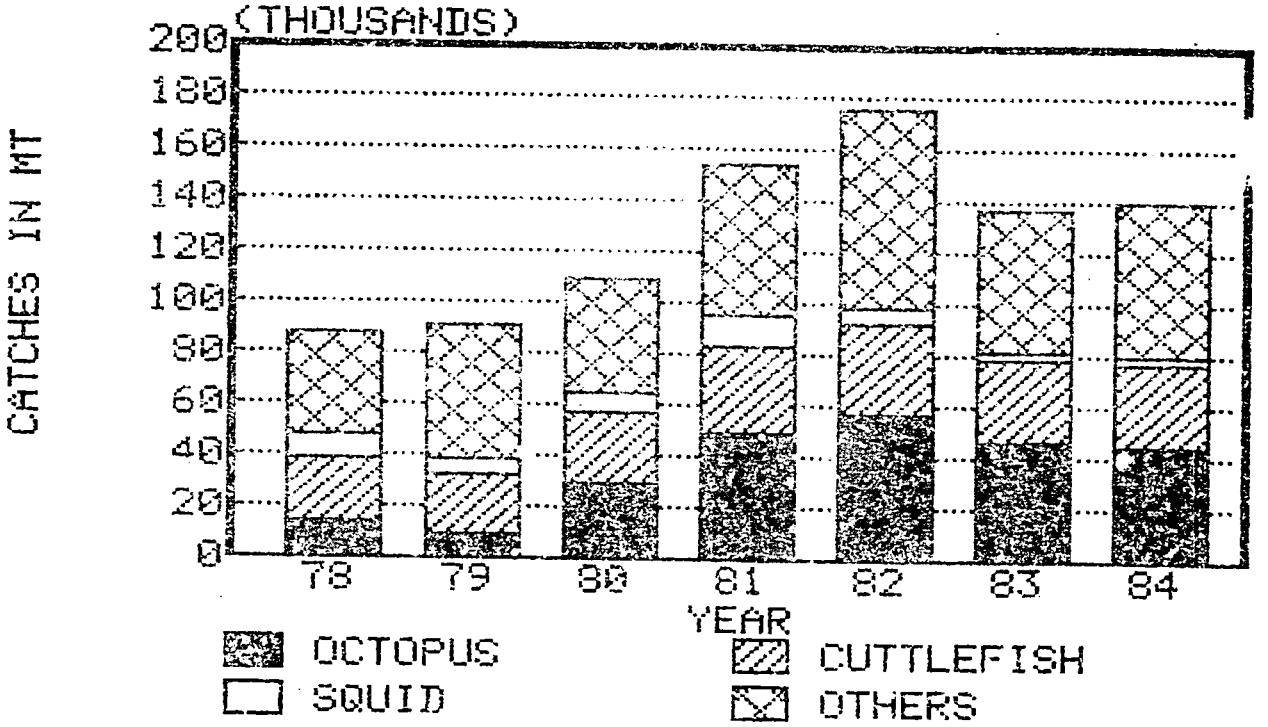


Figure 4 : CATCH PER FISHING DAY

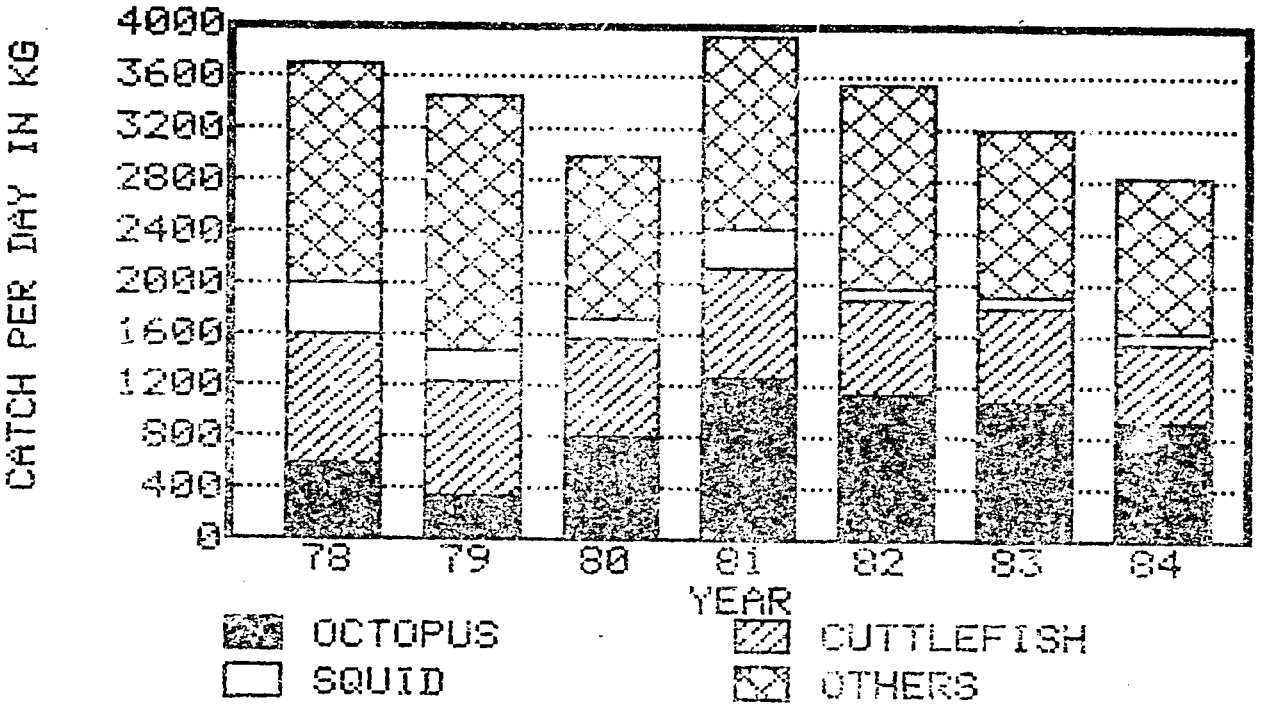


Figure 5 : CATCH/DAY PER GRT CLASS

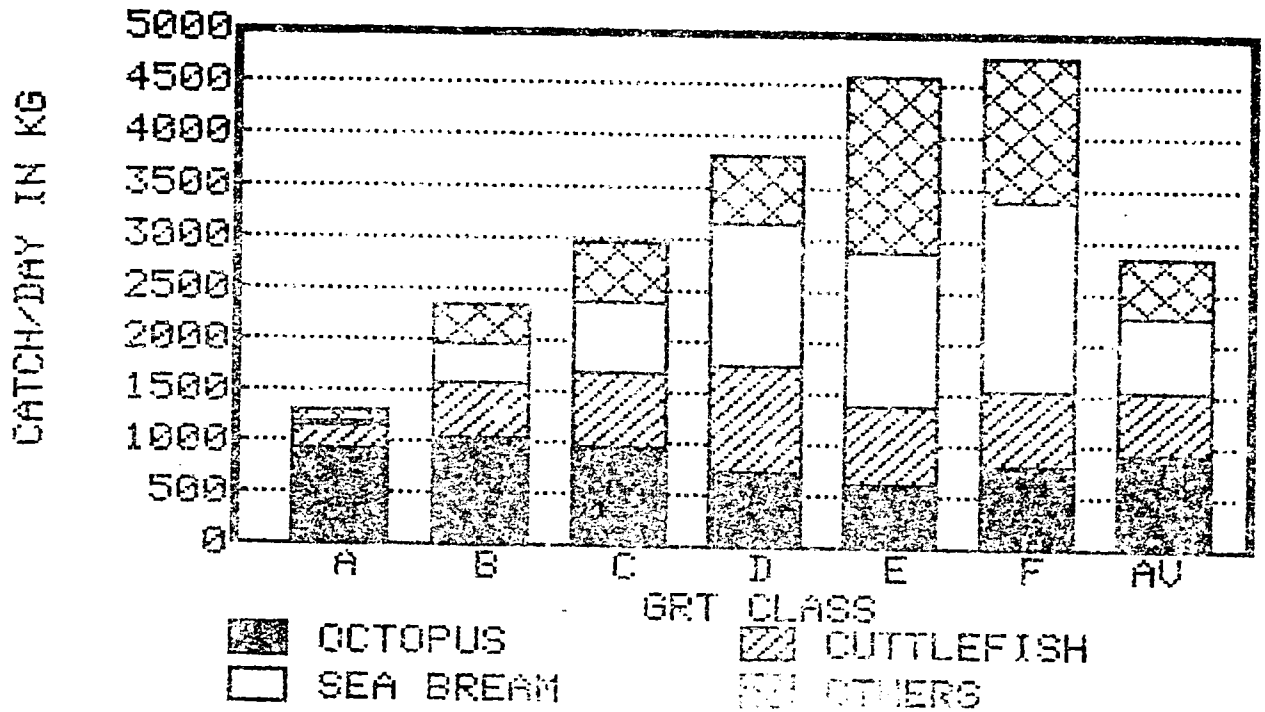


Figure 6 : MONTHLY CATCHES 1984

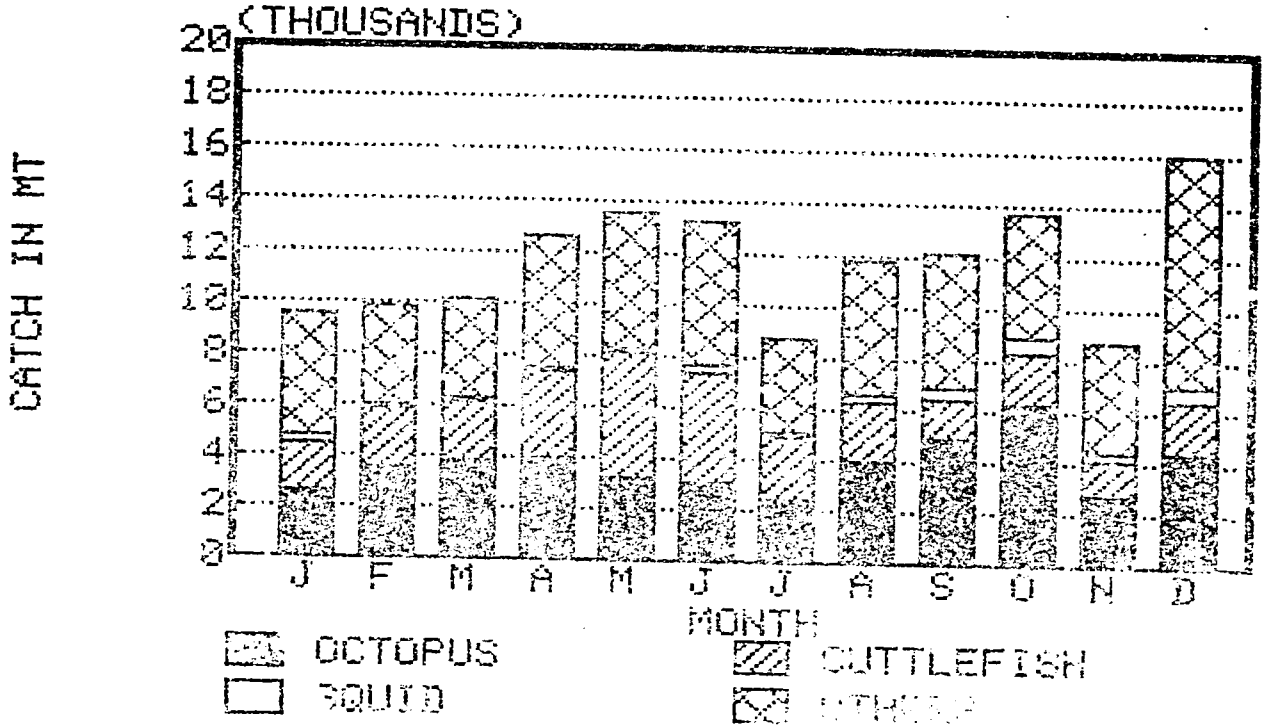
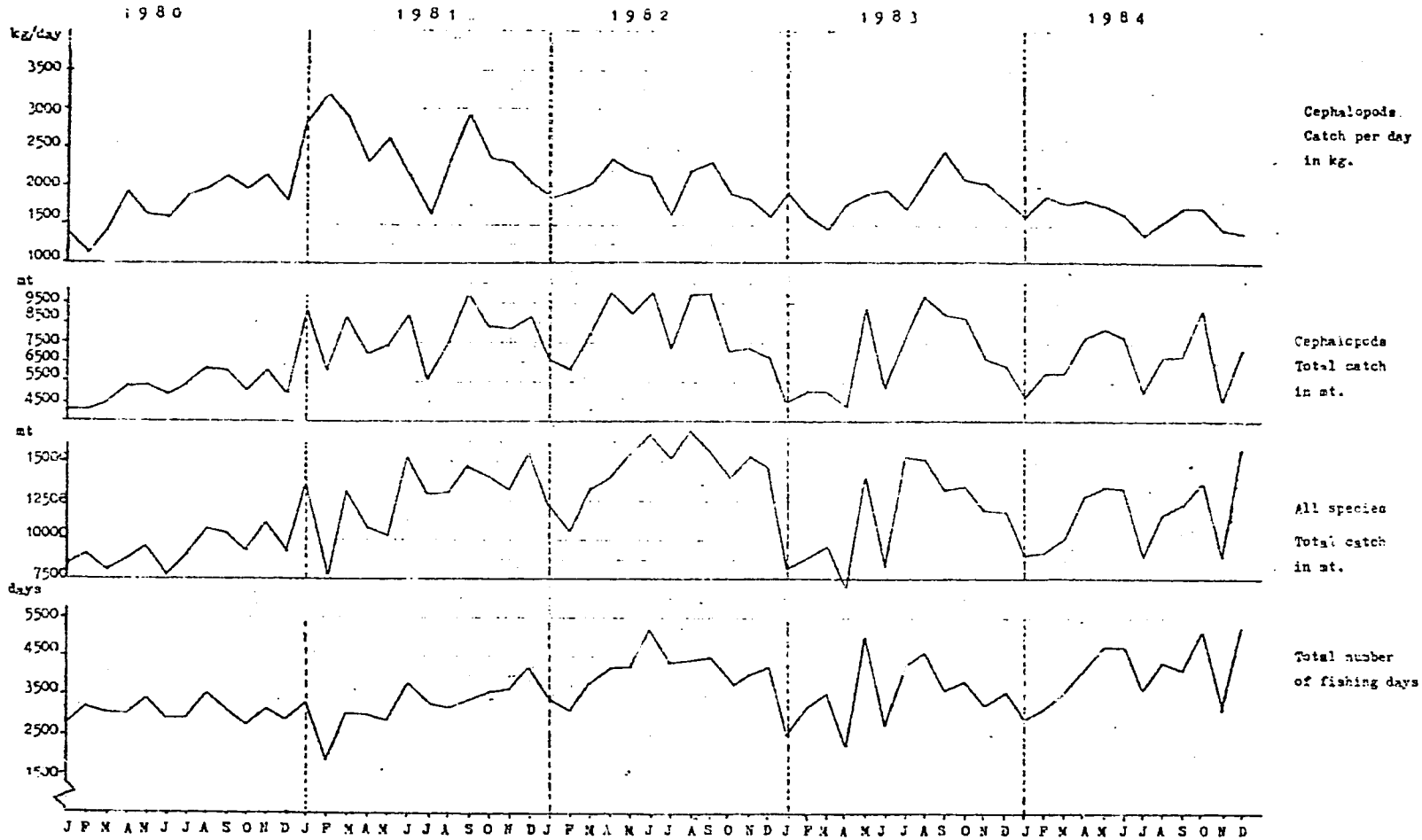


Figure 7 : Monthly catches and effort, 1980-1984



APPENDIX I

FAO FISHERIES COMMITTEE FOR THE EASTERN CENTRAL ATLANTIC (CECAF)

Date: 날 자

Sampler:

Boat name 선 명	Flag country 국 적	GRT 톤	Length (m) 길 이	Type 1/ 종류	Type of Gear 2/ 기아 종류
				[ ] carrier 운반선 [X] fishing 어선	[X] bottom trawler [ ] midwater " [ ] purse seiner

Last landing port 먼저 양육항	Date departed 출항일자	Next landing port 다음 양육항	Total days at sea 항해일수	Total fishing days 조업일수
ASPAIMaS	3-5-78	LASPAIMaS	68	63

TOTAL CATCH (tons) - use different columns for each sub-region
총어획량 [illegible]

fishing days

SPECIES 어 종	ALL REGIONS 전지역	34__ ( )	34__ ( )	34__ ( )	34__ ( )	34__ ( )	34__ ( )
European pilchard 유럽 정어리							
Round sardinella 원형정어리							
Flat sardinella 편평정어리							
Horse mackerel 전갱어		2.072					
Club mackerel 고등어							
Blue fish							
Seabreams (total) Pagellus spp. Dentex spp. Spondyliosoma spp. Others		30.136					
European hakes							
Senegalese/Mauritanian hakes							
Croakers 민 어		1.142					
Pink shrimp 새 우		0.900					
Deep sea shrimp							
Octopuses 문어		51.628					
Cuttlefish		69.238					
Squid		27.440					
All others 기 타		40.526					
TOTAL CATCH 총 계		229.772					

1/ If carrier give as much information as possible about supplier vessels, such as number, size, names, flags (use reverse side)
지면이 부족할경우에는 뒷면을 사용하시기 바람

2/ If different gear was used in different areas, make note of this on reverse side.
지역에 따라 다른 기아를 사용할경우에는 뒷면에 동 사실을 언급바람.

LISTE DES RAPPORTS COPACE/PACE - LIST OF CECAF/ECAF REPORTS

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1979 Mauritania to Liberia. Rome, FAO, 98p., CECAF/ECAF Series/78/8 (En).

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1979 Merluccius senegalensis /Cadenat/ and Merluccius cadenati /Doutre/), in the northern zone of CECAF. Rome, FAO, 93p., CECAF/ECAF Series/78/9 (En).

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1979 (linné), Merluccius senegalensis (Cadenat) et Merluccius cadenati (Doutre), dans la zone nord du COPACE. Rome, FAO, 93p., COPACE/PACE Séries/78/9 (Fr).

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1979 africaines de la Mauritanie au Libéria (26°N à 5°N). Rome, FAO, 165p., COPACE/PACE Séries/78/10 (Fr).

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