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OBJECTIVE 3 : CAPTURE - EFFORT

MAROC (INRH)

The statistics of swordfish catches are collected at l'Office National des Pêches (ONP; National Fishery Office), in charge of managing the trading of fishing products in the fishing markets. For the bluefin tuna caught by the trap-net «principé », the data regarding capture are obtained at the Délégation Régionale des Pêches Maritimes de M'Diq (Maritime Fishery Regional Delegation in M'Diq). The fishing statistics of bluefin tuna captured by the small-scale flotilla in Ksar sghir with fishing rod are collected by carrying out surveys to the fishmongers based in the port of Tanger. The data about the fishing effort of swordfish are collected daily by observers based on the ports of Tanger and Nador. As for biological data, they are collected daily by samplings carried out in those ports.

1- Drift Gillnet

During Year 2000, swordfish landings at the ports of Tanger and Nador have reached 1804.897 tones, 90% of which correspond to the port of Tanger and representing a 22% drop in comparison to the previous year.

The fishing effort amounts to 5651 fishing days, which represents a 7% drop in comparison to Year 1999. The catch by effort unit ranges from 39 to 587, reaching its maximum in the month of May. The monthly data of catch, effort and CPUE relative to the swordfish are shown in **table 1 y 2** and they are graphically represented in **figure 1 y 2**.

Accessory catch in the swordfish fishery is composed of shark species. These are the main ones: *Alopias vulpinus*, *Isurus oxyrinchus*, *Prionace glauca*, and blue marlin : *Makaira nigricans*, amounting respectively to 51% and 41% of the total weight of the accessory catch. The rest is composed of bullet tuna: *Auxis thazard* (FRI), little tuna : *Euthunnus alletteratus* (LTA), skipjack tuna : *Katsuwonus pelamis* (SKJ), pelamid : *Sarda sarda* (BON) and bluefin tuna: *Thunnus thynnus* (BFT) (**Table 3**)

2- Trap-nets

The bluefin tuna catches captured by Moroccan trap-nets during Year 2000 amount to 1365 tones, representing a 60% increase in comparison to Year 1999.

The fishing effort has experimented a slight increase (5%) in comparison to the previous year. CPUE values have varied from 769 to 8943, reaching their peak in the month of April. The captured tuna has an average monthly weight of 212 kg. Data on captures, fishing effort, CPUE and average weight are summarised in **table 4** and they are graphically represented in **figure 3**.

Accessory catch are bullet tuna: *Auxis thazard*, skipjack tuna : *Katsowonus pelamis*, pelamid : *Sarda sarda*, little tuna : *Euthunus alletteratus*, plain bonito: *Orcynopsis unicolor*, and swordfish: *Xiphias gladius*.

3- Hand line

The total catch of bluefin tuna by means of the use of fishing rod in the Straits of Gibraltar amounts to some 249 tones over Year 2000. Monthly data on captures and weights of bluefin tuna are summarised in **table 5** and illustrated in **figure 4**. The most part of the production (60%) takes place during the months of July and August. The average weight of captured tuna is 150 kgs.

Area	Gear	Month	weight(kg)	Effort	CPUE
MED	Gill	1	13906	150	93
MED	Gill	2	43510	254	171
MED	Gill	3	41378	196	211
MED	Gill	4	18506	93	199
MED	Gill	5	19924	155	129
MED	Gill	6	502	34	15
MED	Gill	7	0	53	0
MED	Gill	8	1535	49	31
MED	Gill	9	10152	93	109
MED	Gill	10	26580	182	146
MED	Gill	11	1741	37	47
MED	Gill	12	10016	300	33

total 187750 1596 118

Table.1 Data on capture effort of swordfish in the port of Nador during Year 2000

Area	Gear	month	Weight(kg)	Effort	CPUE
MED	Gill	1	3879	30	129
MED	Gill	2	2734	34	80
MED	Gill	3	19310	63	307
MED	Gill	4	219842	522	421
MED	Gill	5	883040	1382	639
MED	Gill	6	145410	432	337
MED	Gill	7	86562	393	220
MED	Gill	8	123915	342	362
MED	Gill	9	88067	245	359
MED	Gill	10	22052	298	74
MED	Gill	11	19370	284	68
MED	Gill	12	2967	30	99

total 1617147 4055 399

Table.2 Data on effort and captures of swordfish in the port of Tanger during Year 2000

MONTH	W_BFT	W_SKJ	W_BON	W_LTA	W_FRI	W BUM	W_OTH
1	0	0	0	0	0	0	252
2	18	0	192	0	0	0	461
3	0	0	0	247	1820	0	2210
4	0	0	0	140	290	0	5604
5	0	0	0	0	1625	360	6450
6	70	0	0	0	240	1122	2729
7	0	0	0	415	0	702	5025
8	0	700	0	0	0	10454	12144
9	0	0	0	830	885	24152	9550
10	0	0	0	640	0	9148	9756
11	0	0	0	370	0	2100	4338,5
12	0	0	0	454	0	44	861
TOTAL	88	700	192	3096	4860	48082	59380,5

OTH : sharks and squalidae

Table 3. Accessory catch in the fishery of swordfish by drift gillnet in the port of Tangerang.

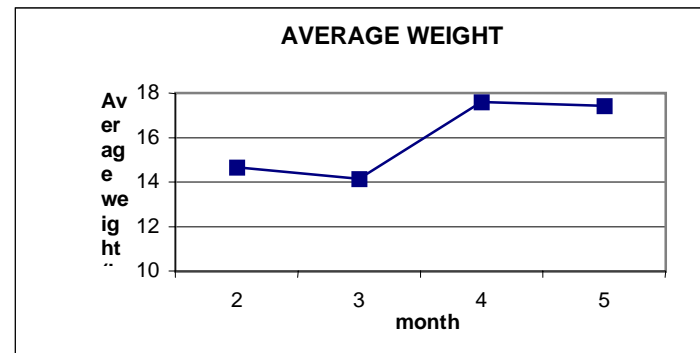
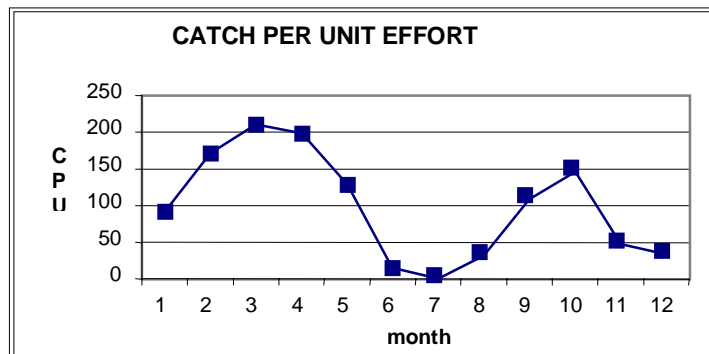
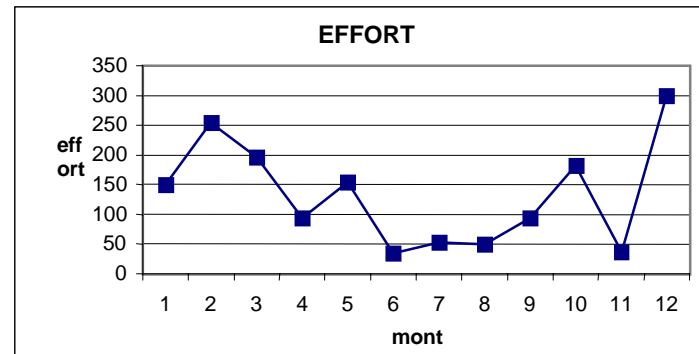
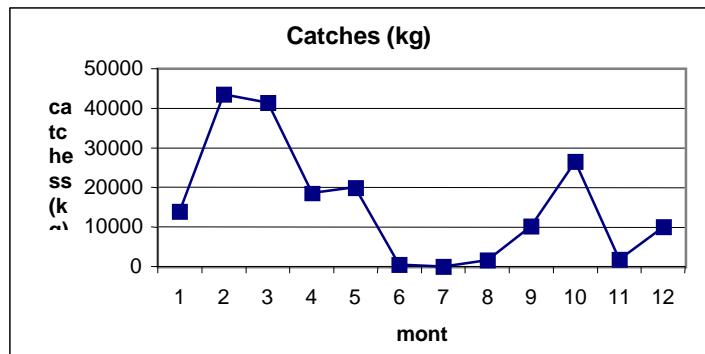


Figure 1. Monthly evolution of catch, fishing effort, performance and average weight of swordfish catches in the Alboran Sea (Nador), during Year 2000

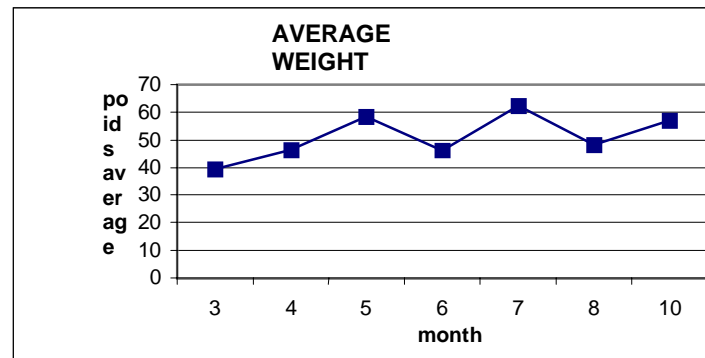
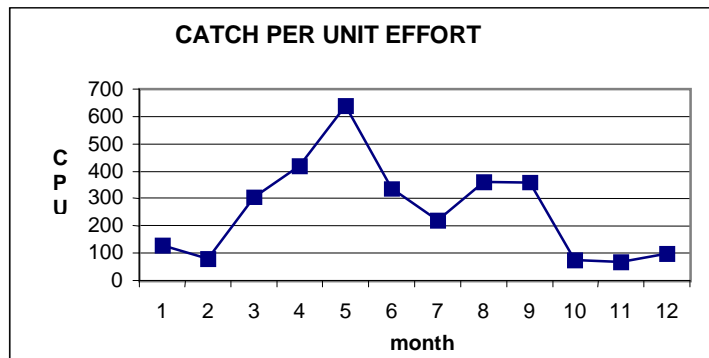
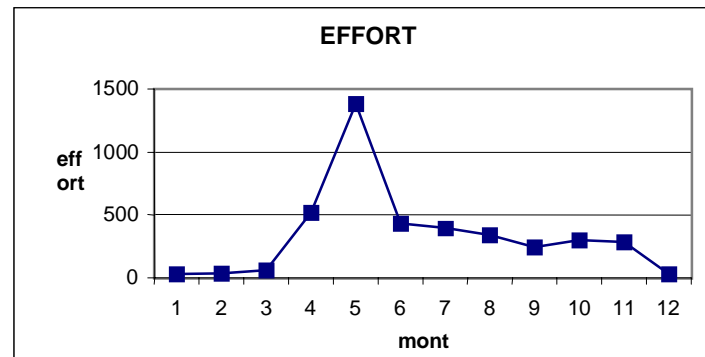
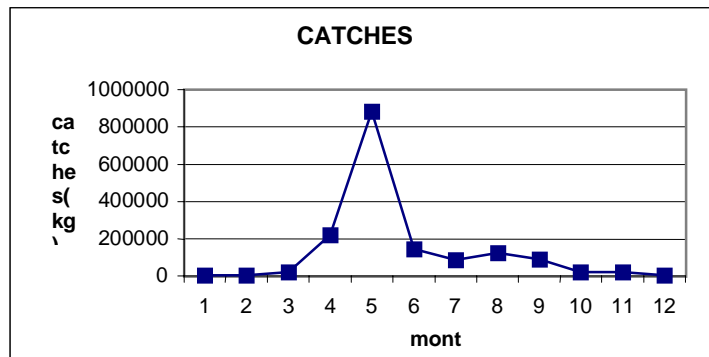


Figure 2 Monthly evolution of catch, fishing effort, performance and average weight of the swordfish catch in the Straits of Gibraltar (Tanger) during Year 2000

area	Gear	month	weight*(kg)	number	Effort	CPUE	W
ATL	TRAP	4	661776	2929	74	8943	226
ATL	TRAP	5	673700	3336	124	5433	202
ATL	TRAP	6	29988	158	39	769	190

ATL	TRAP	TOTAL	1365464	6423	237		
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(*) preliminary data

Table.4 Data on effort, catches, CPUE and average weight of bluefin tuna captured by Moroccan trap-nets in Year 2000

Area	Gear	month	Weight*(kg)
MED	HAND	1	26038
MED	HAND	2	30601
MED	HAND	3	13310
MED	HAND	4	27044
MED	HAND	5	157
MED	HAND	6	0
MED	HAND	7	83131
MED	HAND	8	68032
MED	HAND	9	420

Total			248733
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(*) preliminary data

Table.5 Data on effort and catch of bluefin tuna in the port of Ksar Sghir in Year 2000

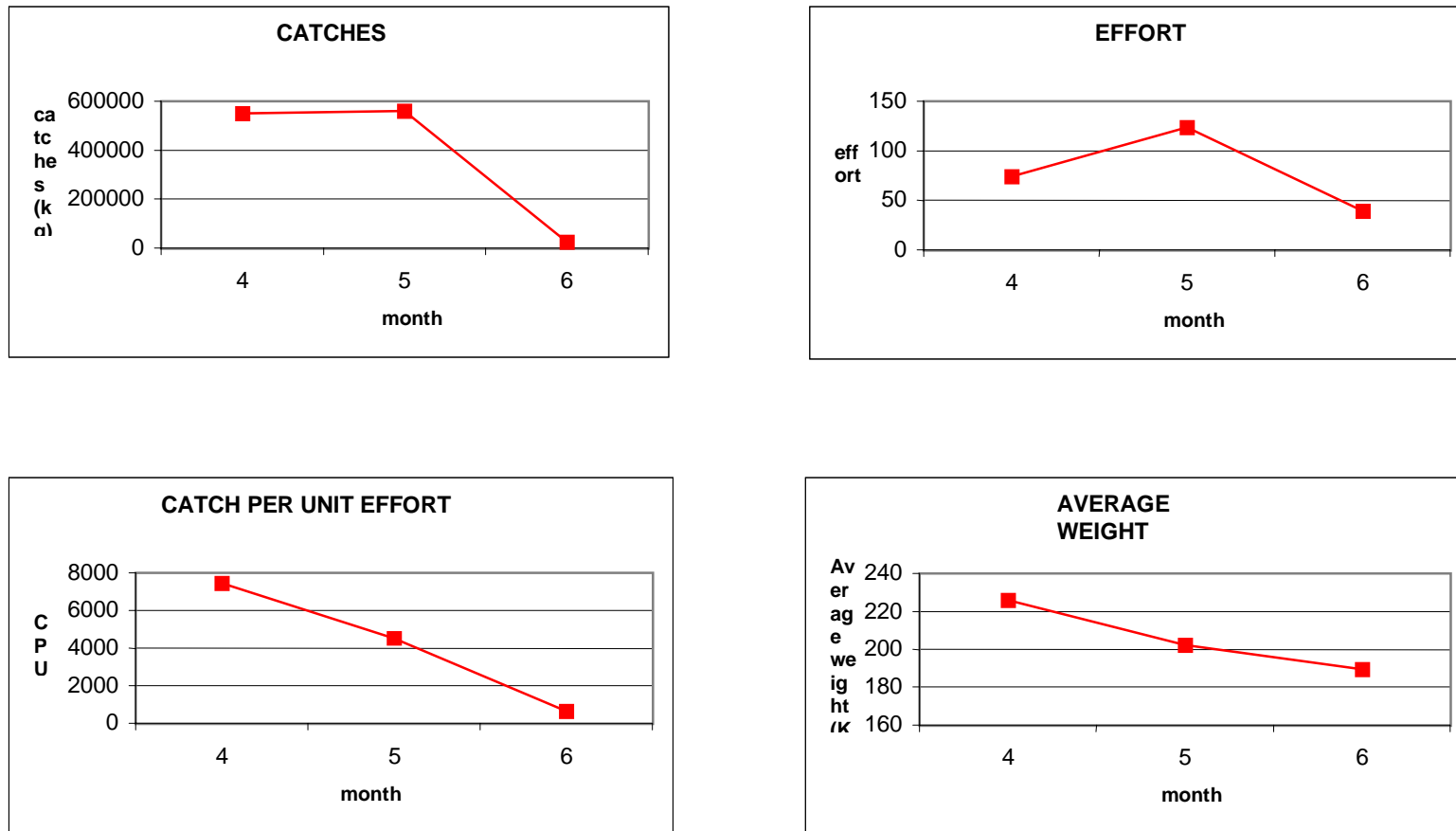


Figure 3 Monthly evolution of catch, effort, performance and average weight of bluefin tuna captured by Moroccan trap-nets in Year 2000.

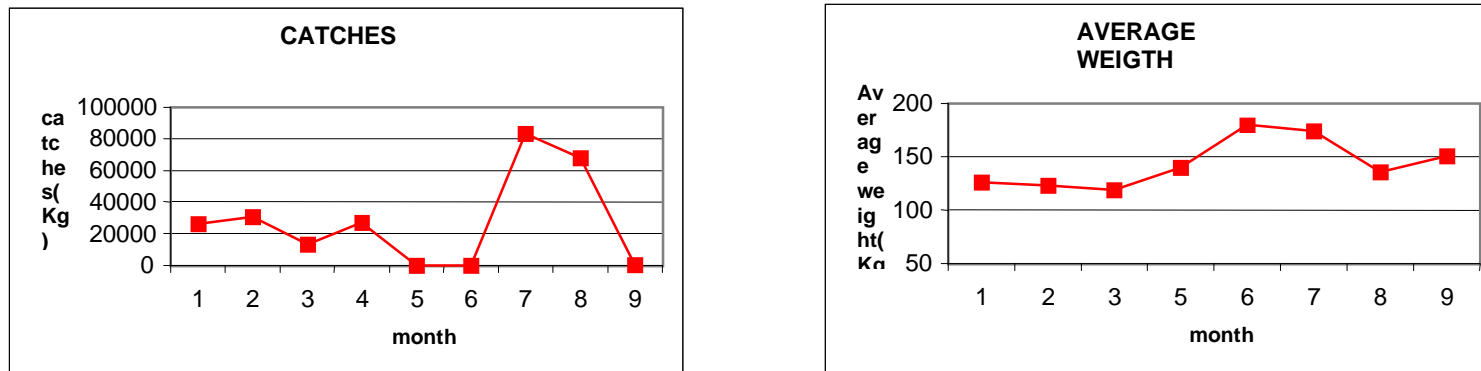


Figure 4 Evolution of capture and average weight of bluefin tuna in the port of Ksar Sghir in Year 2000

SPAIN (IEO)

All over Year 2000 and by means of the Information and Sampling Network of IEO established in the ports of Barbate, Tarifa, Algeciras, Motril, Aguilas, Cartagena, Alicante, Castellón, San Carlos de la Rapita and Tarragona we obtained data regarding catch and effort by species and gear of the landings produced in each of the ports. Several landings of all gears were controlled. We also used observers on board of longliners who obtained daily data on catch by species, effort per haul as well as environmental factors. Totally, 43 days of on-board observation took place. All this information, properly processed, has enable the elaboration, along with the official data of landing per species and gear, of the statistics corresponding to Task I and II of ICCAT.

In **table 6**, catches by species and gear can be observed, as well as the fishing effort per gear for the different Spanish tuna and tuna-like species.

1- Bluefin tuna

The total catch of bluefin tuna obtained by all the gears in the Mediterranean reached 2426 t, which means a 2772tn. In the Eastern Atlantic, 3474 t were captured.

2- Swordfish

1361tn of swordfish were catch by surface longliner and 10tn with semipelagic floating longline.

3- Albacore

37tn of long-finned tuna were caught by surface longline and 80 with live bait. This fishery is occasional and its activity depends upon the greater or lesser availability of this and other tuna resources.

Figures 5 to 9 present the data on catch, effort, CPUE and average weight by species, gear, month and totals obtained in Year 2000 in the different Spanish tuna and tuna-like fisheries.

Species	Method	Area	Catch-n°	Catch-tn	Effort	Effort Unit
SWO	TRAP	ATL	53	2.4	276	Codend Days
	TRAP	MED				Codend Days
	LLJAP	MED				* N° of hooks
	LLALB	MED		1.6		N° of hooks
	LLPB	MED		10.3		N° of hooks
	SURF	MED		16		Fishing Days
	OTH	MED		23		-
	LLHB	MED	89532	1361	2379.66	N° of hooks
BFT	TRAP	ATL	8535	1416	276	Codend Days
	TRAP	MED				Codend Days
	LLJAP	MED		463		* N° of hooks
	LLHB	MED	1329	22.4	2379.66	N° of hooks
	PS	MED	-	1676	418	Days at Sea
	HAND	ATL	697	126	409	Fishing Days
	HAND	MED	-	67	-	Fishing Days
	BB	MED		10		Fishing Days
	TROL	MED		8		Days at Sea
	OTH	ATL		-		-
	OTH	MED		-		-
	SPORT	MED		14		-
	TRAP	MED		8		Codend Days
	ALB	LLALB	MED		37	
LLHB		MED	146	1.5	2379.66	N° of hooks
BB		MED		80		Fishing Days
TRAP (P.TUN)		ATL	365	0.3	124	Codend Days
BON	SURF (P.TUN)	ATL	1355	0.9	124	Codend Days
FRT		ATL	329	0.5	124	Codend Days
LTA		MED				Codend Days
BON		MED				Codend Days
FRT		ATL				Fishing Days
BON		MED				Fishing Days
FRT		MED				Fishing Days
BON		ATL				Fishing Days
FRT						

* (x 1000)

Table 6. Catch and Effort data estimate and preliminary by species, method and area of the Spanish Fisheries in the Mediterranean and the South Atlantic Region for 2000.

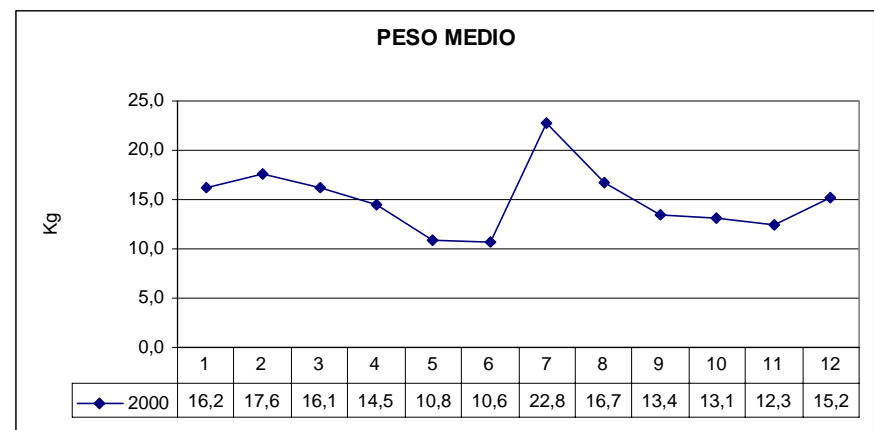
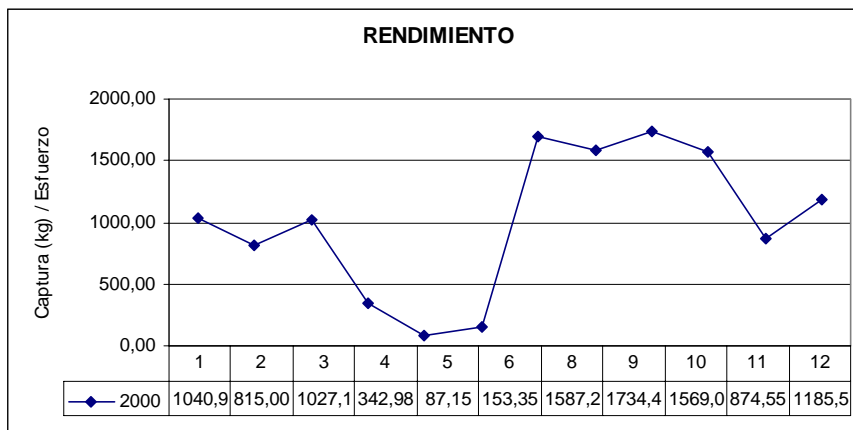
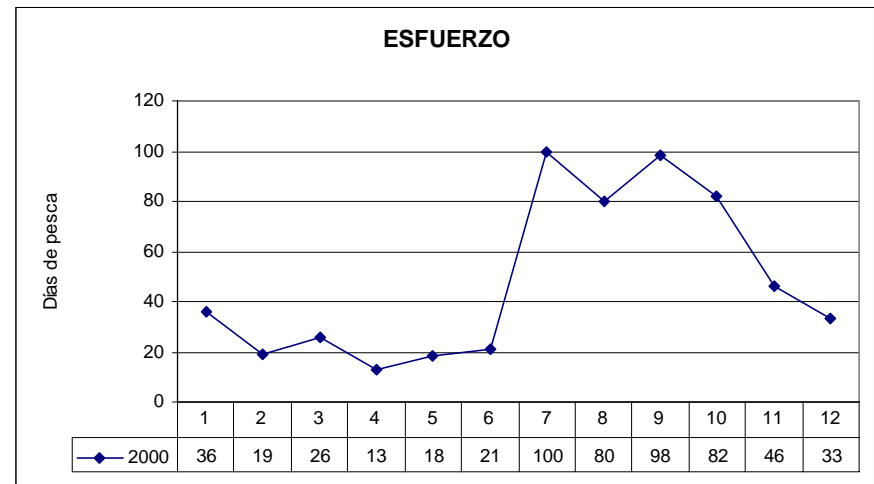
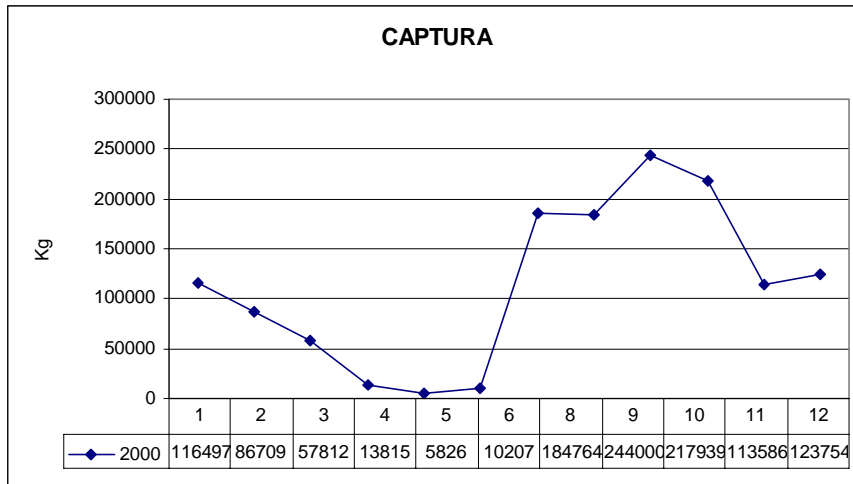


Figure 5.- Catch, effort, performance and average weight of the swordfish controlled by Spain captured by the Surface Longline gear (LLHB) for 2000 in the Mediterranean.

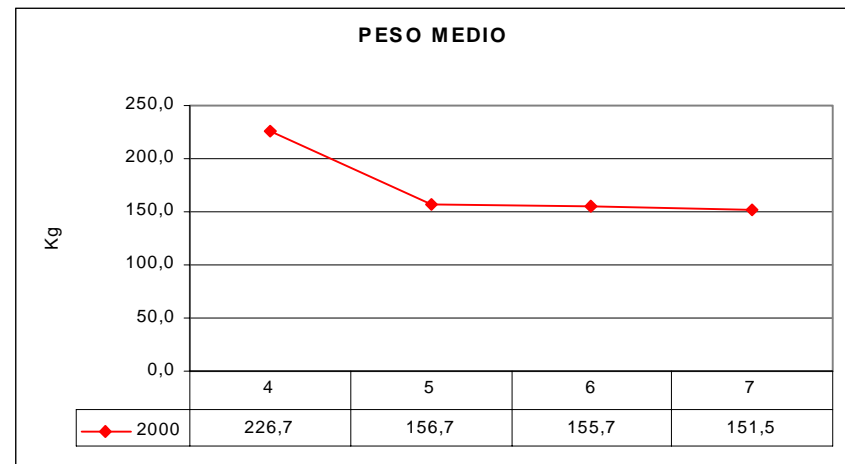
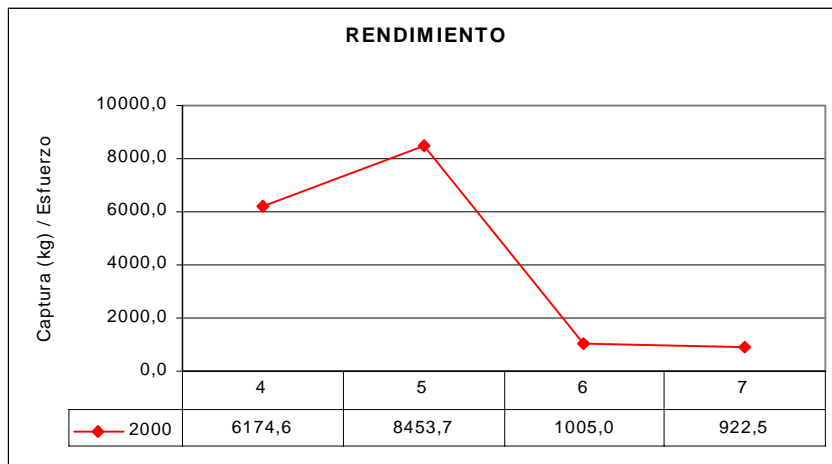
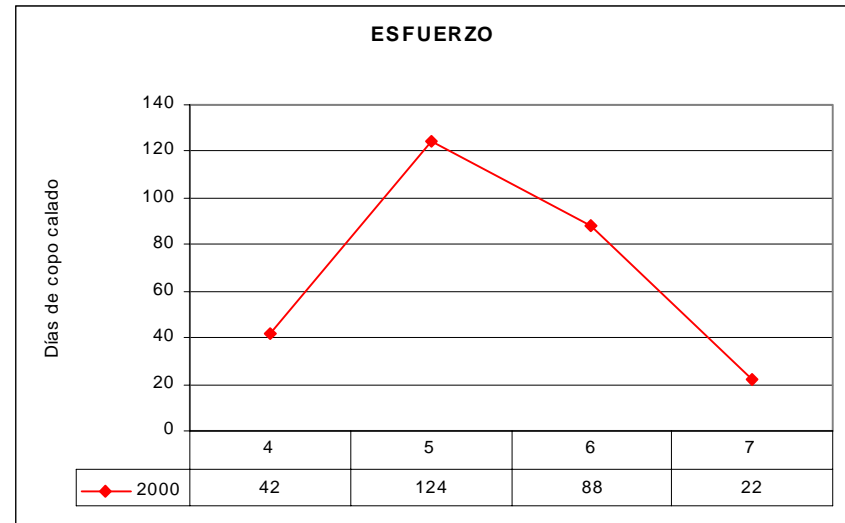
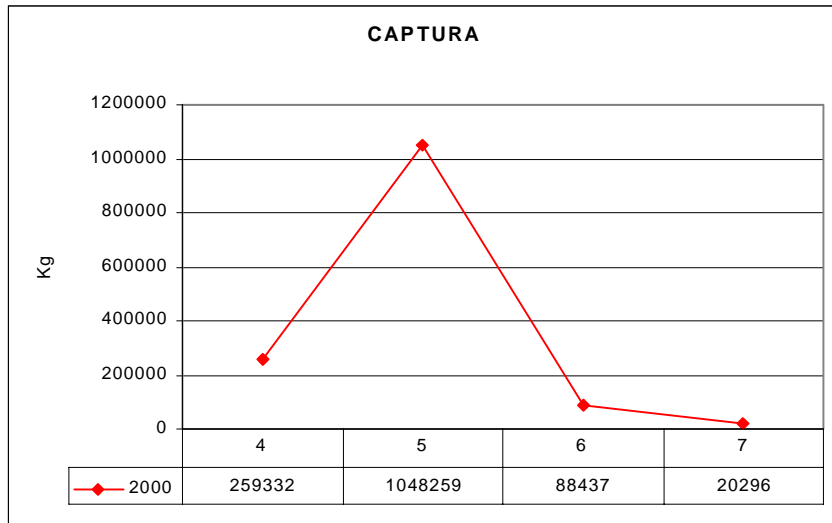


Figure 6.- Capture, effort, performance and average weight of bluefin tuna controlled by Spain captured by the gear of trap-net (TRAP) for 2000 in the Atlantic.

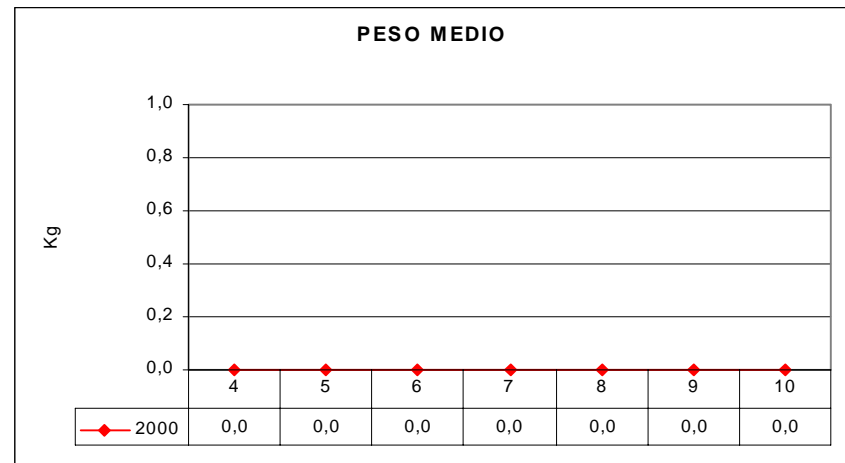
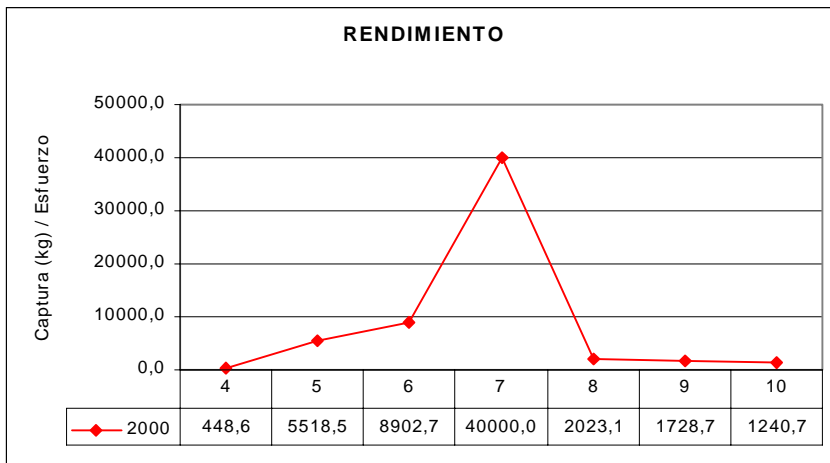
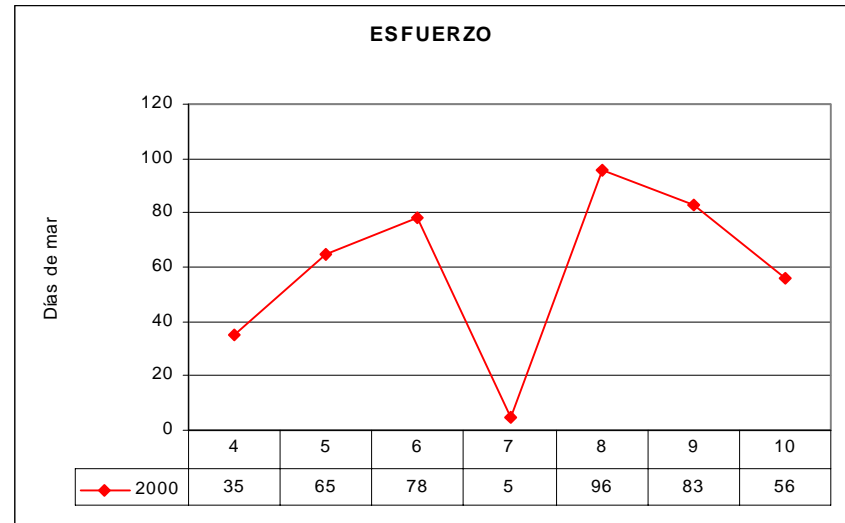
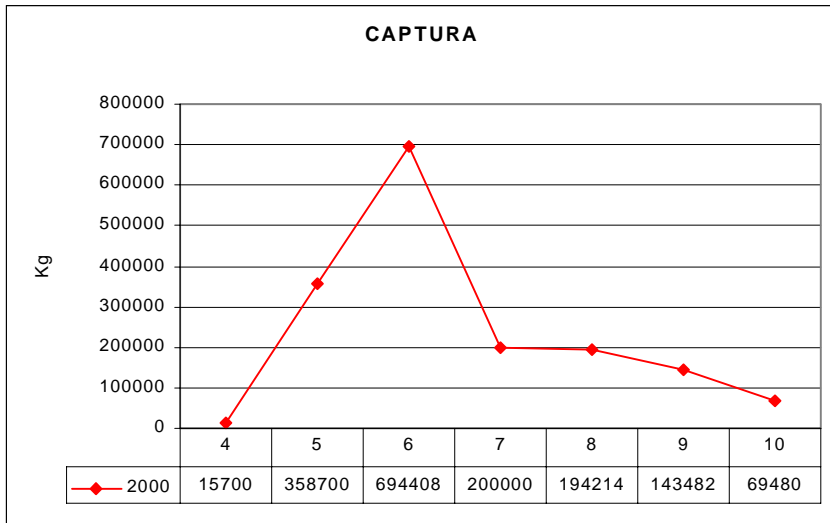


Figura 7.- Catch, effort, performance and average weight of bluefin tuna controlled by Spain captured by the purse seine (PS) gear in the Mediterranean.

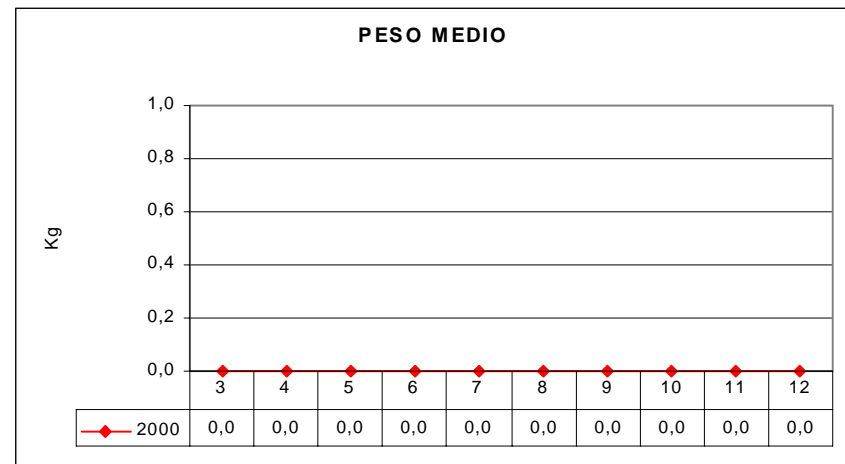
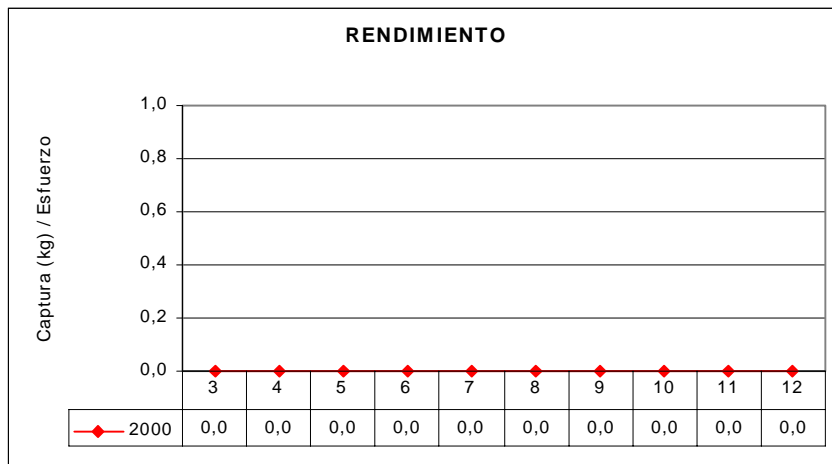
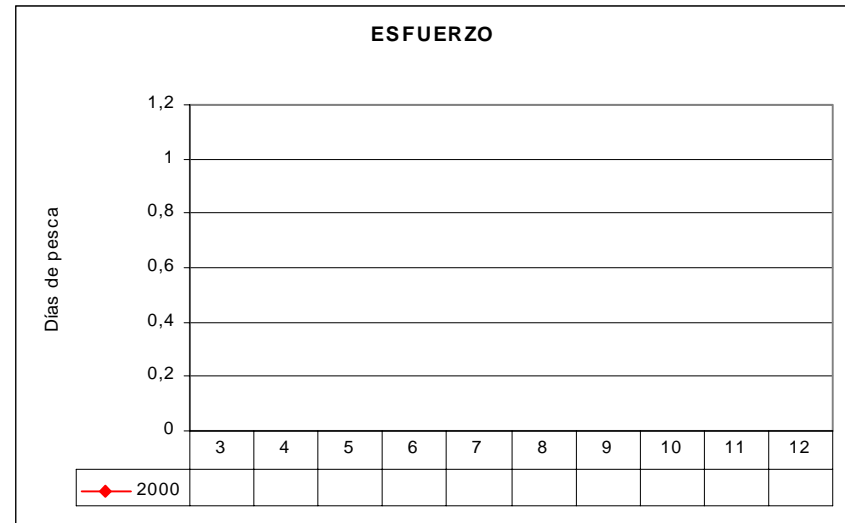
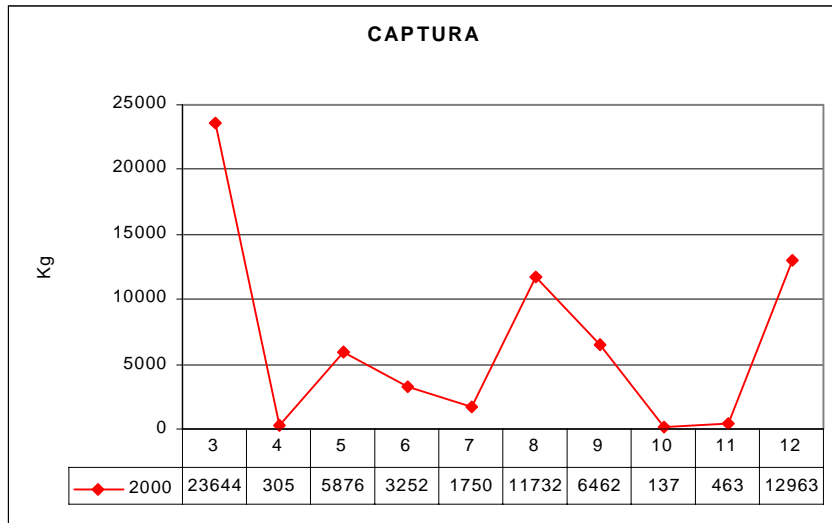


Figure 8.- Catch, effort, performance and average weight of bluefin tuna controlled by Spain captured by the Fishing Rod (HAND) gear for 2000 in the Mediterranean.

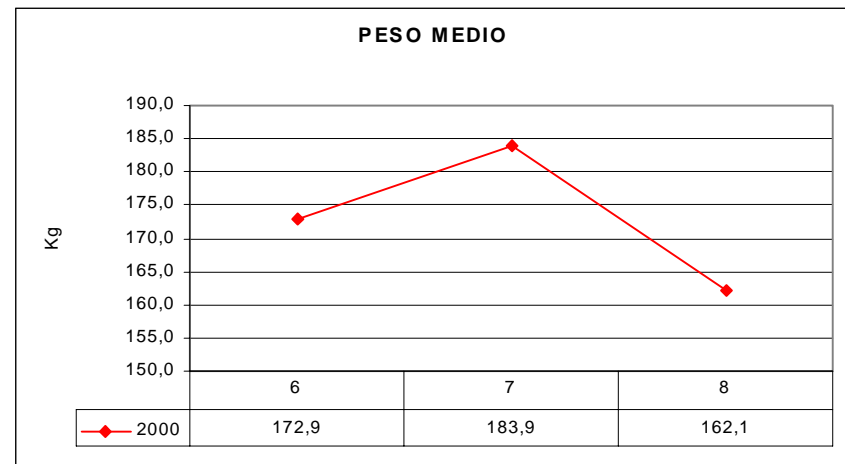
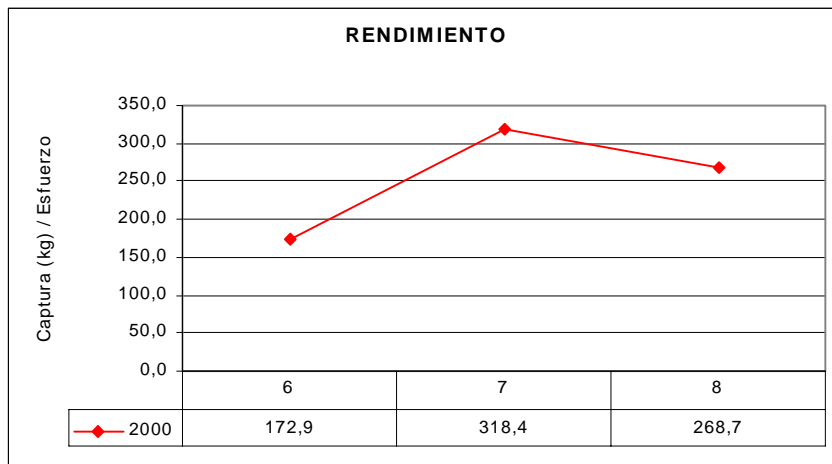
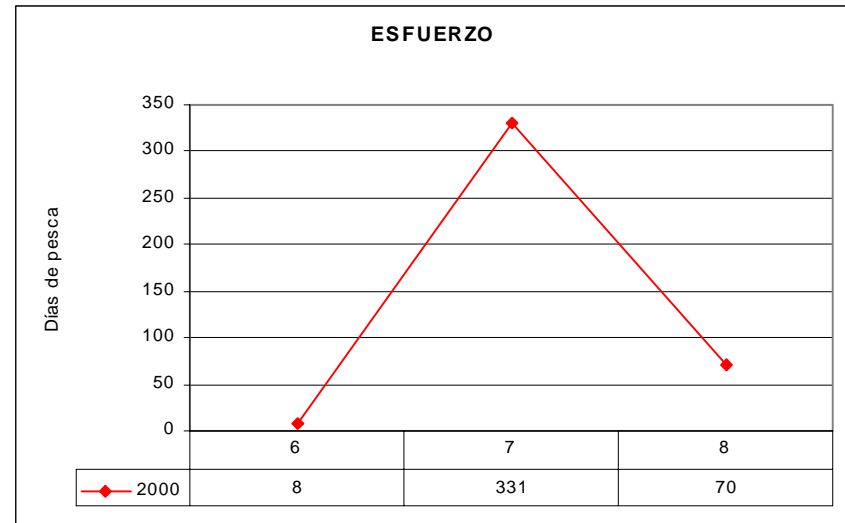
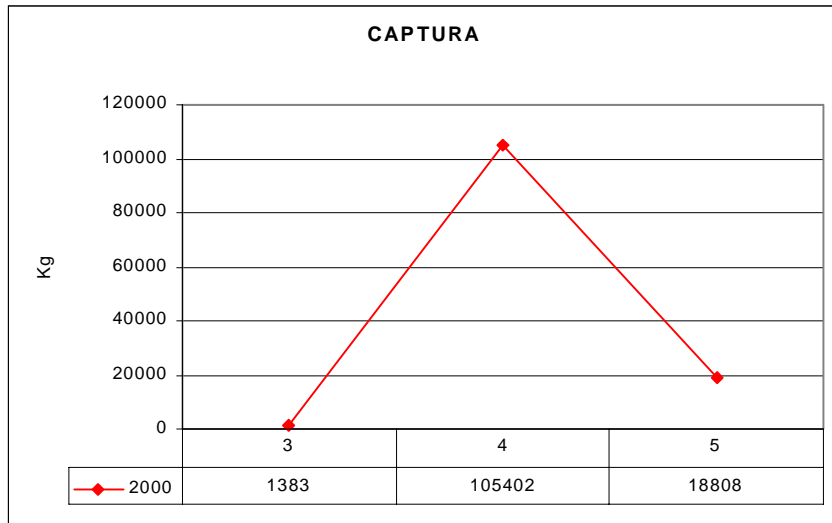


Figure 9.- Catch, effort, performance and average weight of bluefin tuna controlled by Spain captured by fishing rod (HAND) for Year 2000 in the Atlantic.

TUNISIA (INSTM)

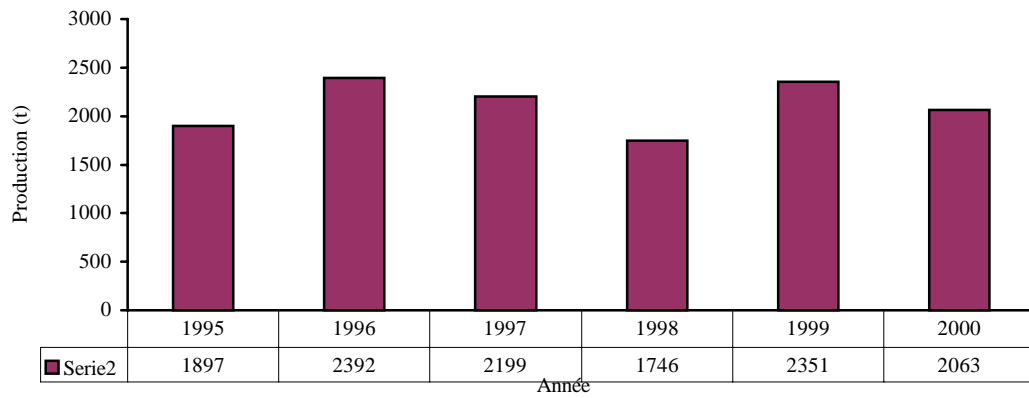
Data gathering on the relation catch and effort by method and spatial-temporal stratum for the chosen species, with an effort being put in order to distribute the catch demographically by type of gear and fishing area.

Monthly production of bluefin tuna during the past 5 years (all gears)

Year	1995	1996	1997	1998	1999	2000*
Month						
Jan.	132	39	24	77	4	4
Feb	51	8	105	13	12	36
Mar	129	290	125	418	40	38
Apr	237	506	112	28	413	92
May	417	205	78	110	173	236
Jun	363	965	1503	926	1542	1210
Jul	284	315	146	142	99	344
Aug	10	28	5	3	2	4
Sep	9	7	3	6	2	22
Oct	101	2	34	10	9	14
Nov	17	2	14	5	36	14
Dec	147	25	50	8	19	49
Total annuel	1897	2392	2199	1746	2351	2063

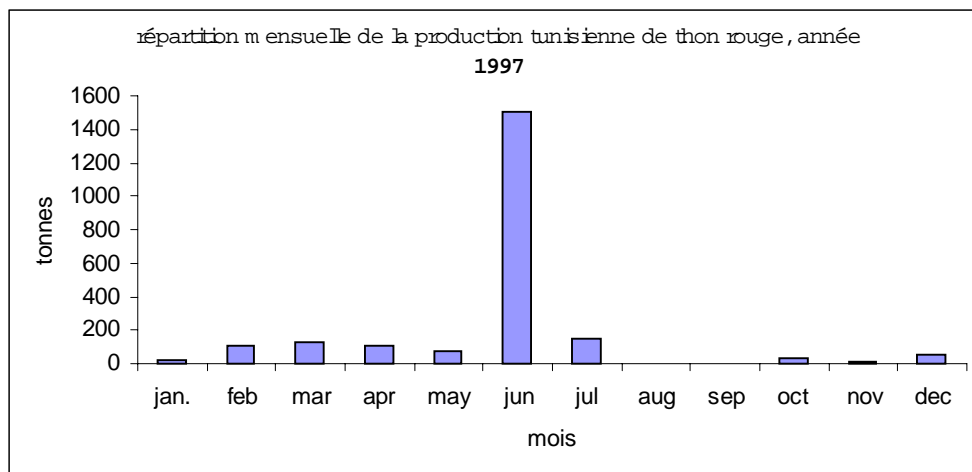
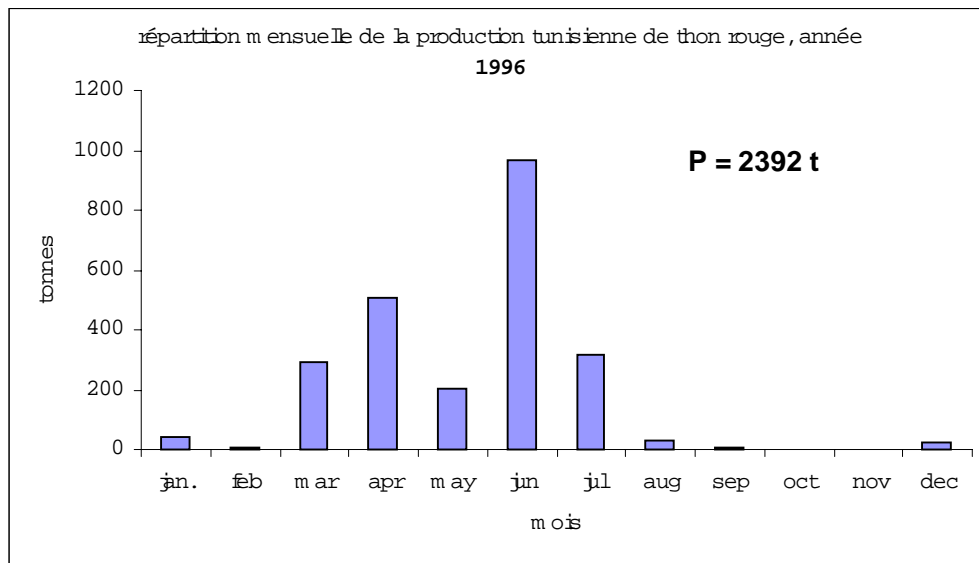
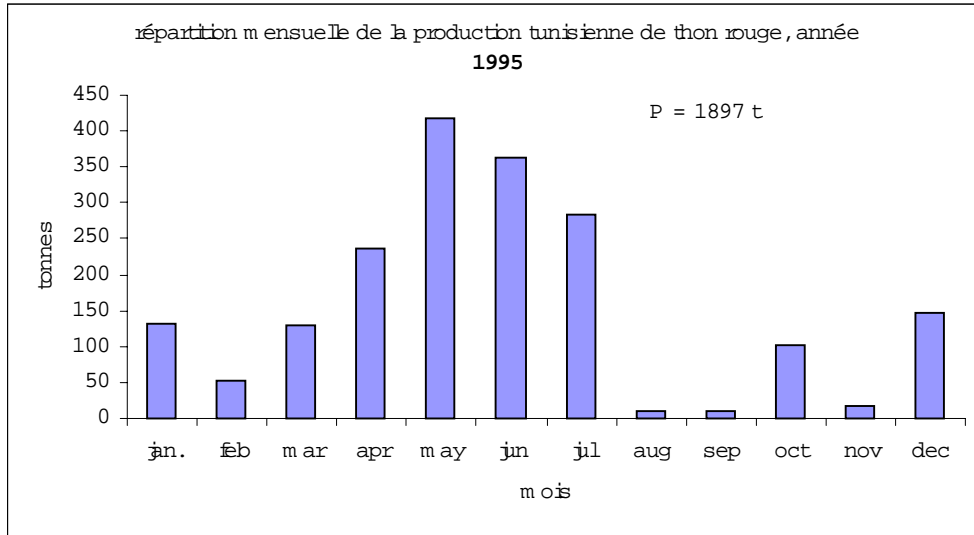
* Production for Year 2000 is still provisional

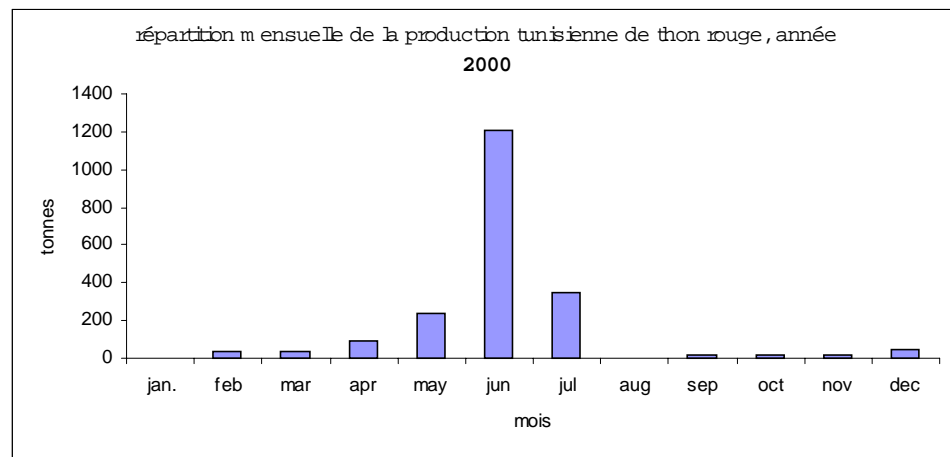
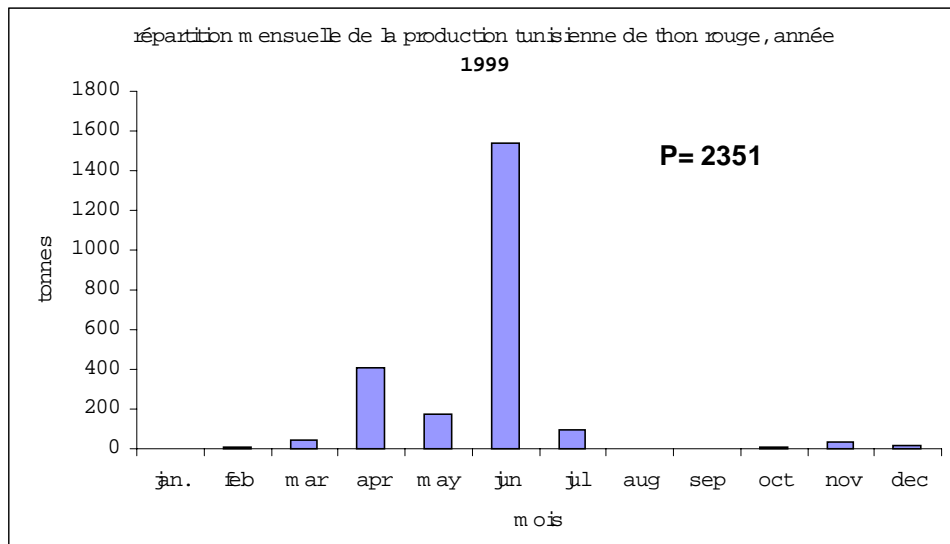
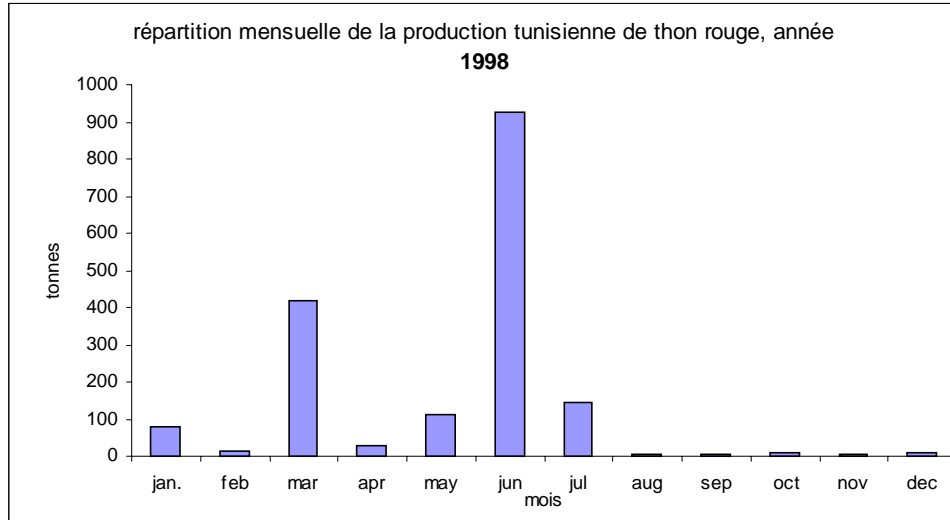
This table, which illustrates the national production of bluefin tuna, has been granted to us by competent authorities.



In order to convey the monthly Tunisian catch of bluefin tuna, we present here the distribution of these catches in all gears (the catch of trap-nets is included).

These histograms show without a doubt that performances reach their peak during the month of June every year and additionally in the months of May and July.





When it comes to data related to the effort, we have tried in several occasions to gather information and to raise social awareness in order to obtain similar data, but up to now, the obtained results are far from our hopes. We have not succeeded in obtaining big pelagic fishing professionals' confidence. However, some amateurs have shared with us the results of their activities. We intend to present these data during the meeting group SCRS-ICCAT.

However, when it comes to the data of catch of the Sidi Daoud trap, the presence of the surveyors has greatly contributed to the successful collection of these data.

The Year 2000 catch is an important problem affecting Tunisian trap-nets more and more every day. As a matter of fact, production does not exceed 49 pieces, with a total weight of 4279 kilograms. This production had never been registered over the 137 yearly campaigns registered in our files.

It must be noted that the average total weight of the catch ranges from 35 to 232 kilograms, whereas the individual sizes range from 105 to 220 centimetres.

Bluefin tuna catch in Sidi Daoud trap-net, year 2000

Date	Poids de la prise	Nombre de pièces	Poids moyen
18/04/2000	37	1	37
26/04/2000	496	8	62
27/04/2000	457	3	152
28/04/2000	736	10	74
01/05/2000	441	7	63
10/05/2000	88	1	88
10/05/2000	79	1	79
12/05/2000	159	1	159
14/05/2000	66	1	66
19/05/2000	303	4	76
19/05/2000	177	2	89
20/05/2000	120	1	120
23/05/2000	220	2	110
21/05/2000	696	3	232
28/05/2000	103	2	52
01/06/2000	35	1	35
27/07/2000	66	1	66
TOTAL	4279	49	87

MALTA (NAC)

1.-Bluefin tuna

Important data was collected daily from the fish market. This included all the individual weights of the bluefin tuna caught during May and June

Date	
Quantity (number)	
Fish Species	
Weight (kg)	

Table Fish Market Data Forms

Table 7 shows the number of BFT caught during each month and their respective weight. The average weight for BFT for each month is also calculated. **Fig. 10 and 12** are graphical distributions of the results obtained in **Table 7**.

Month	Number	Catch/kg	Average Weight/kg
4	10	1525,5	152,6
5	1062	156712,99	147,6
6	904	133485,75	147,7
7	183	29332,75	160,3
Total	2159	321056,99	148,7

Table 7 Tuna Catches for 2000

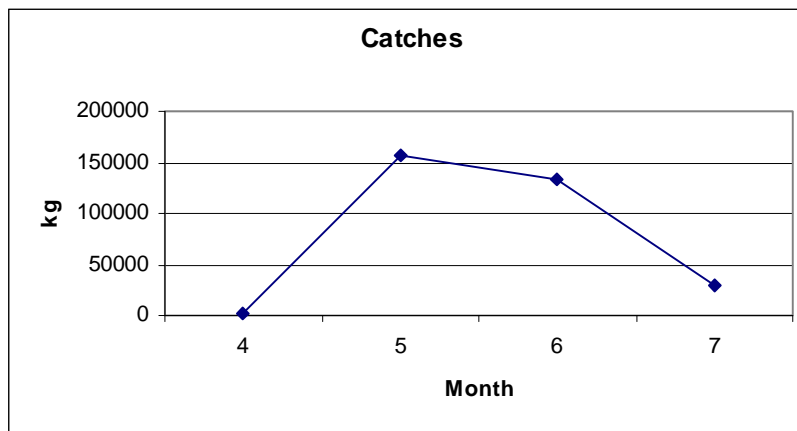


Fig. 11 Weight (kg) of BFT caught by LLHB during the Year 2000

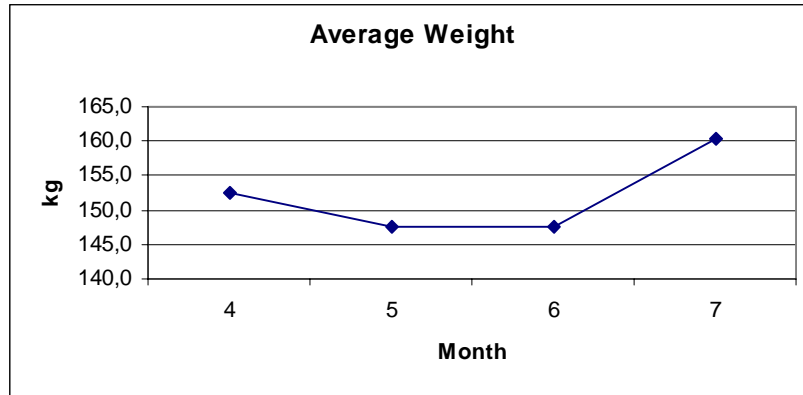


Fig. 12 Average Weight of BFT caught by LLHB during the year 2000

2- Swordfish

As regards swordfish, the only data that could be collected was the total weight of SWO for each month. No individual readings were collected since there were no observers on board SWO fishing vessels or at the fishmarket. Data collected is shown in **Table 8** and **Fig. 13** is a graphical representation of the data collected.

<u>MONTH</u>	<u>WEIGHT (Kg)</u>
1	4630
2	4326
3	3424
4	1521
5	12714
6	27098
7	28158
8	24548
9	6913
10	12773
11	12596
12	1454
Total	140155

Table 8 SWO Catches per Month for 2000

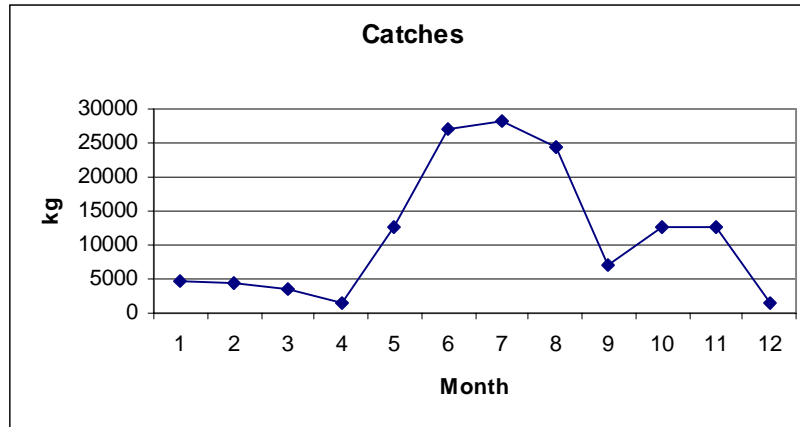


Fig. 13 Swordfish Catches per Month for 2000

LIBYA (MBRC)

The fishing season of BFT (*Thunnus Thynnus*) in Libya during the year 2000 started in the middle of may by the long lines and pursesieners and fallowed by fixed traps by the end of the month (may), the season extends up to the first week of July. The total landing of fish is different from one season to another, mainly depending on weather conditions, fish migration, total catch in the reagon, it was clear that catching large quantities of BFT by pursesienes in the route of fish migration towards trap nets during years 1999 – 2000 effected the total catch of the trap nets.

During the year 2000, a total catch of 47.621 metric tons of BFT and 4560 k.g. of little tuna have been reported by three trap nets, while a total catch of 1018.425 metric tons of BFT, 7.635 metric tons of sword fish and 2.852 metric ton of cartilaginous fish were raported by long lines and one pursesiener.

1.- Trap nets

Zreg tuna trap

During the year 2000 four net lifting have been carried out **table N_o (9)**.

No of net lifting	Date	No of fish	Sex		Not identified	Weight k.g.
1	2/6/2000	15	1	4	11	670
2	8/6/2000	91	42	46	3	5400
3	13/6/2000	133	-	-	133	6650
4	21/6/2000	31	8	22	1	1400
Total		270	51	71	148	14120

Table No 9. Shows the No of lifting date and No of fish caught in Zreg trap.

Gazira tuna trap

During the year 2000 only three net lifting have been carried out **table No (10)**.

No of net lifting	Date	No of fish	Total wt. K.g
1	3/6/2000	292	18000.
2	11/6/2000	158	10068
3	27/6/2000	33	2157
Total		483	30225

Table No 10. Shows the date, No of net lifting, and No of fish caught in Gazira trap net.

The total landing of fish during this year is less than previous years because of the bad weather during the season as well as extensive fishing operations carried out by pursesieners targeting blue fin tuna fish.

Zeletin tuna trap

During the year 2000 season this trap carried out only one net lifting in 1/6/2000, the total catch was 70 BFT, the total weight was 3276 K.g.

2.- Surface long line

As indicated in final report of 1999, the Libyan fleet using surface long line to catch BFT consists of six fishing vessels, during year 2000 the same vessels were operated by the Libyan – Spanish fishing company in the same area described previously. The details of the fishing operations is presented in **table 11**.

No of vessels	No of Working days	Weight BFT M.T.	SWO	Carti. Fish K.g.
1	24	58.681	320	450
1	16	24.366	240	-
1	34	80.522	795	55
1	26	38.294	78	68
1	24	87.500	835	-
1	30	54.500	-	-
Total 6	154	343.863	2268	573

Table No (11) shows the number of vessels, working days and total catch during the year 2000.

Also during the same year another six long liners have been in operation in the Libyan water as a joint venture with other countries, **table 12** shows their activities during the season of the year 2000.

No of vessels	No of Working days	Weight BFT M.T.	SWO	Carti. Fish K.g.
1	35	100.568	1040	647
1	35	129.399	1148	350
1	35	107.629	561	228
1	35	115.110	210	-
1	35	97.382	1000	755
1	35	108.128	1408	299
Total 6	210	658.216	5367	2279

Table No (12) shows the number of vessels, working days and total catch during the year 2000.

A detailed daily catch was recorded by one observer on board of one of the Libyan long lines is presented in **table 13** the mean catch was 14.9 fish every day the average weight of each fish was about 109 K.g. the relation between the No of fish and working days was present in **Figure 14**. While relation between weight of fish and working day was present in **Figure 15**.

No. working days	Date	No. of fish	Weight of fish in kg.
1	31/5/2000	26	1895
1	01/6/2000	34	3725
1	02/6/2000	40	2064
1	03/6/2000	10	1629
1	04/6/2000	4	360
1	05/6/2000	5	840
1	06/6/2000	8	1318

	1	07/6/2000	18	3166
	1	08/6/2000	17	2898
	1	09/6/2000	10	1429
	1	10/6/2000	4	530
	1	11/6/2000	2	75
	1	12/6/2000	16	1510
	1	13/6/2000	18	1802
	1	14/6/2000	11	1125
Total	15	15 days	223	24366

Sum = 223

Mean = 14.9

Table (13) shows the activity of one Libyan long lines by haul obtained by observer.

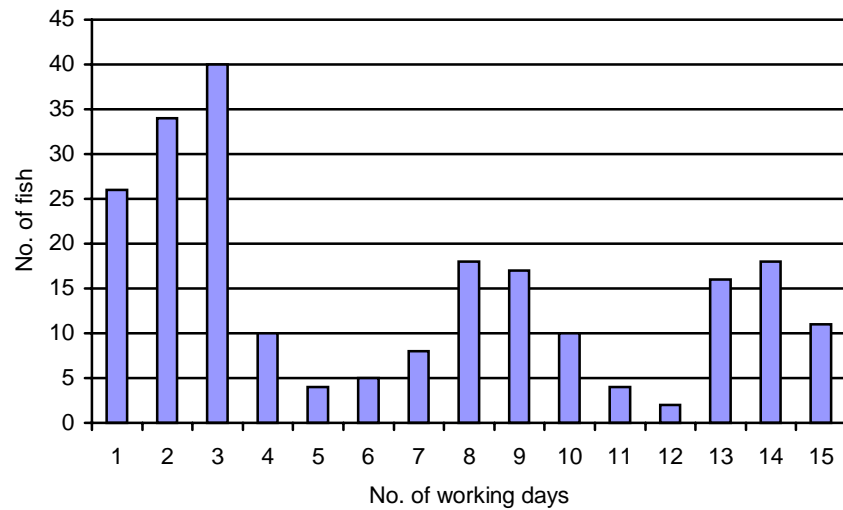


Fig. 14 Relation between number of fish and number of working day by one Libyan long line during the year 2000.

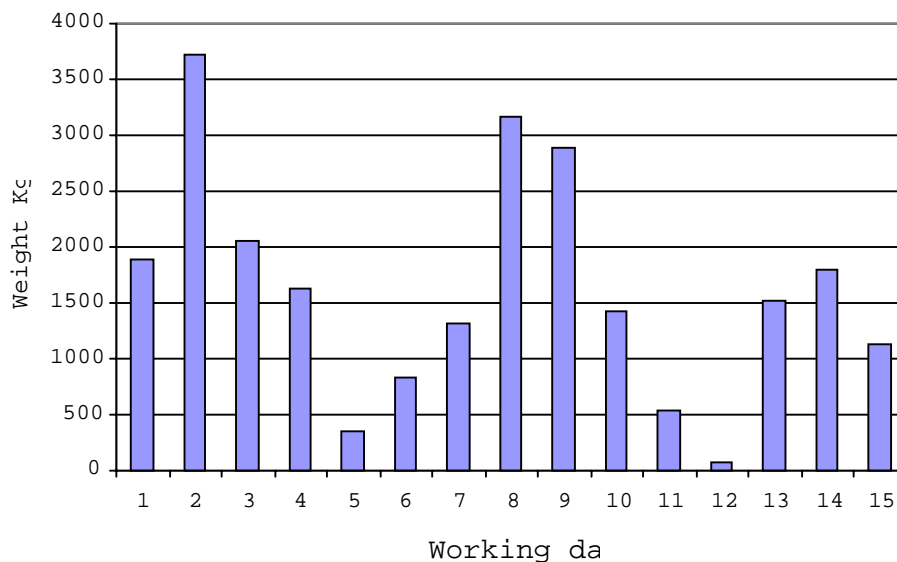


Fig 15 Relation between weight and working days by long line of BFT in Libya 2000 by one vessel.

3.- Purse siene

In the 1999 final reported it was mentioned that the Libyan fleet consists of 5 fishing vessels made in Holand during the year 1990-1991 four of those vessels have been sold to private sectors unfortunately No reports have been submitted, only one of them reported its catch which was 16.068 metric tons (year 2000).

To summarise, during the year 2000, 3 trap-nets remained operative, making 132 drawn copo effort days, during which 8 hauls took place. During those days, 832 tuna were captured with an average weight of 58 kg and a total catch of 47 t of this species, representing a CPUE (catch/drawn copo) of 356 kg and an average catch per haul of 5,875 kg.

12 vessels operated with surface longline and captured 1002 t of bluefin tuna, 7,2 t of swordfish and 2,8 t of different species of elasmobranchs in a total of 364 fishing days, representing an effort of 910 (x1000) baits. The average capture per haul was 2753 kg, whereas the CPUE (catch/ 1000 baits) increased to 917 kg / 1000 baits, being the average weight of the tuna 109 kg.

With encircling net, only one vessel's catch was obtained (16,068) from the 5 units fishing with encircling net in Libyan waters. Comparing this amount to that obtained in the year 1999, it could be estimated that the catch with the encircling net has slightly decreased.