



*Thunnus thynnus* (Linnaeus, 1758)

**Aims 3. Data on Catch an fishing effort**

## TASK 3.- CATCH AND FISHING EFFORT. SPAIN

### 3.1 SAMPLING STRATEGY FOR FISHING INFORMATION

In order to get the information on catch by species and fishing gear as well as to implement daily interviews with the skippers for the information regarding fishing location by trip, total catch by trip, fishing gear, fishing effort by species and gear, the ports of Algeciras, Barbate, Tarifa, Ceuta and Motril were selected (**Figure 25**).

Algeciras and Motril provided information on surface longline activities. Tarifa allowed for the information on hand line and bait boat fishing activities being recorded. Trap fishing activities were tracked by observers on board the Japanese freezing vessels at Barbate and Tarifa, which monopolize the whole catch from the traps located at the Southern Atlantic area (Tarifa, Zahara, Barbate and Conil).

As regards longline fishing activities, the information from Motril and Algeciras represented a sampling coverage of about 100% for the Strait of Gibraltar and Alborán Sea areas.

Hand line fishing activities were controlled by means of an informer at Tarifa. A coverage of about 100% for the aforementioned port, which represent about 80% of the whole hand line fishing activity for the studied area, was accomplished.

Bait boat fishing activities were controlled at Algeciras and Tarifa, where landed catch represents practically the whole fishing activity by this gear. Total catch for the gear was accomplished with the collaboration of the C.O. Santander which controls catches carried out by the fleet in the North of Spain, during the last period of the fishing season in the area of the Strait of Gibraltar and landed at ports in the North of Spain.

Trap fishing activities were controlled by two informers-samplers on board Japanese freezing vessels. Information was reported on a daily basis for the catch accomplished by the four traps in the area. It was recorded a total of 220 days of *bunt set* (fishing effort unit for traps).

## 3.2 TRAPS

### 3.2.1 Spain

Bluefin tuna catch by the Spanish traps in the South Atlantic area amounted to 1525 MT (9042 fish with 168 kg of average weight) during 1998. Fishing effort (230 days of bunt set) kept constant as compared to previous years. Table I presents bluefin tuna catch and weight distribution by month and total catch for all the traps. In the same **Table 1** it is also reported the catch of associated species by species and month for the four traps located at the South Atlantic area. **Table 2** shows catch by species, month and total catch for the trap at Ceuta. **Figure 26** shows trends in bluefin tuna catch by month for the Atlantic and Mediterranean traps in the Strait of Gibraltar.

## 3.3 SURFACE LONGLINE

### 3.3.1 Spain

Swordfish catch by driftness surface longline in the area of study (Atlantic area of the Strait of Gibraltar and Alborán Sea) amounted to 98 MT: 21 MT in the Alborán Sea and 77 MT in the Atlantic area close to the Strait of Gibraltar (**Table 3**).

Associated species for this fishery represented a percentage of 17% of the total catch in the area of Alborán Sea. **Table 4** shows catch by species, month, area and total catch. Fishing effort amounted to  $692 \times 10^3$  hooks and  $230 \times 10^3$  hooks for the Atlantic area and Alborán Sea, respectively.

**Figures 27 and 28** present catch, fishing effort, yield, mean weight for swordfish from surface longline in the two studied areas.

## 3.4 BAIT BOAT

### 3.4.1 Spain

Bluefin tuna catch by bait boat amounted to 52 MT (2633 fish with 19.6 kg of mean weight). **Table 5** shows catch by month. Catch of associated species was null. Fishing effort amounted to 575 fishing days. As regards albacore (ALB) catch, it amounted to 21 MT in the Alborán Sea and Gulf of Cadiz.

Figure **29** shows monthly trend for catch, fishing effort, yield and bluefin tuna mean weight during the fishing season.

### 3.5 HAND LINE

#### 3.5.1 Spain

Bluefin tuna catch by hand line amounted to 71 MT with no associated species. Fishing effort amounted to 375 fishing days. The number of vessels was 72 and 43 in the Alborán Sea and Strait of Gibraltar, respectively.

**Tables 6 and 7** shows data on bluefin tuna monthly catch and fishing effort by hand line in the Alborán Sea and Strait of Gibraltar.

**Figures 30 and 31** shows monthly trend for bluefin tuna catch, fishing effort, yield and mean weight for the studied areas- Alborán Sea and Strait of Gibraltar-, during the fishing season.

## TRAPS (TRAP)

SPAIN 1998

## Spanish traps at the south Atlantic area

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
BFT*	NUMBER	-	-	-	367	6513	1307	840	15	-	-	-	-	9042
	WEIGHT	-	-	-	83968	1078797	191418	167774	2933	-	-	-	-	1524890
BON	NUMBER	-	-	-	0	0	170	0	0	-	-	-	-	170
	WEIGHT	-	-	-	0	0	170	0	0	-	-	-	-	170
FRT	NUMBER	-	-	-	0	840	0	0	0	-	-	-	-	840
	WEIGHT	-	-	-	0	756	0	0	0	-	-	-	-	756
LTA	NUMBER	-	-	-	0	0	6816	0	0	-	-	-	-	6816
	WEIGHT	-	-	-	0	0	11360	0	0	-	-	-	-	11360
SWO	NUMBER	-	-	-	0	1	4	15	4	-	-	-	-	24
	WEIGHT	-	-	-	0	29	116	435	116	-	-	-	-	696
EFFORT*		-	-	-	33	95	65	24	13	-	-	-	-	230

**Table 1.** Bluefin tuna catch in number of fish and weight (kg). Spanish traps at the south Atlantic area. Monthly effort in days of bunt set during 1998

## TRAPS (TRAP)

SPAIN 1998

**The Mediterranean area close to the Strait of Gibraltar**

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
FRT*	NUMBER	-	-	-	-	-	0	0	0	38000	325722	59342	-	<b>423064</b>
	WEIGHT	-	-	-	-	-	0	0	0	31119	170760	15505	-	<b>217384</b>
LTA	NUMBER	-	-	-	-	-	21	721	625	0	0	329	-	<b>1696</b>
	WEIGHT	-	-	-	-	-	42	1081	1250	0	0	1974	-	<b>4347</b>
BFT	NUMBER	-	-	-	-	-	477	3	0	1	65	12	-	<b>558</b>
	WEIGHT	-	-	-	-	-	1431	474	0	250	88	28	-	<b>2271</b>
OTH	NUMBER	-	-	-	-	-	208	138	1	1	0	20	-	<b>368</b>
	WEIGHT	-	-	-	-	-	3352	1552	100	110	0	200	-	<b>5314</b>
EFFORT*		-	-	-	-	-	16	31	31	30	31	15	-	<b>154</b>

**Table 2.** Bluefin tuna catch in number of fish and weight (kg). Spanish traps in the Mediterranean area close to the Strait of Gibraltar. Monthly effort in days of bunt set during 1998

LONGLINE (LLHB)

SPAIN 1998

The south Atlantic area close to the Strait of Gibraltar

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
SWO*	NUMBER	705	0	0	18	14	128	49	456	232	472	794	374	<b>3242</b>
	WEIGHT	13095	0	0	483	423	4078	1225	12722	6266	11549	19342	7710	<b>76893</b>
OTH	NUMBER	188	0	0	0	0	2	37	565	264	382	425	142	<b>2005</b>
	WEIGHT	924	0	0	0	0	10	252	7215	3094	2261	6355	850	<b>20961</b>
EFFORT*		135.1	0	0	4.0	10.8	52.0	19.3	97.4	73.5	92.0	130.5	77.9	<b>692.5</b>

**Table 3.** Swordfish catch in number of fish and weight (kg). Spanish longline in the south Atlantic area close to the Strait of Gibraltar during 1998.

LONGLINE (LLHB)

SPAIN 1998

Alborán Sea (Mediterranean)

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
SWO*	NUMBER	-	-	-	-	116	198	583	973	112	55	-	-	2037
	WEIGHT	-	-	-	-	1713	2149	5720	9205	1145	1086	-	-	21018
TIB	NUMBER	-	-	-	-	7	16	138	60	29	9	-	-	259
	WEIGHT	-	-	-	-	85	135	1862	691	339	82	-	-	3194
OTH	NUMBER	-	-	-	-	0	0	0	118	50	1	-	-	169
	WEIGHT	-	-	-	-	0	0	0	387	151	29	-	-	567
EFFORT*		-	-	-	-	18.7	27.0	82.4	75.0	11.5	8.4	-	-	222.9

**Table 4.** Swordfish catch in number of fish and weight (kg). Spanish longline in the Alborán Sea (Mediterranean) during 1998.

Note: Fishing effort directed to target species (\*) for this gear

TIB groupes PGO, AVO, IOO

OTH groupes BFT, CHO, OTH



BAIT BOAT (BB)

SPAIN 1998

**Areas close to the Strait of Gibraltar**

<b>SPECIES</b>		<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>VI</b>	<b>VII</b>	<b>VIII</b>	<b>IX</b>	<b>X</b>	<b>XI</b>	<b>XII</b>	<b>TOTAL</b>
BFT*	NUMBER	-	-	-	-	21	-	-	-	256	709	1510	137	<b>2633</b>
	WEIGHT	-	-	-	-	473	-	-	-	4871	12211	27189	6954	<b>51698</b>
ALB	NUMBER	-	-	-	-	-	-	-	-	-	-	1661	180	<b>1841</b>
	WEIGHT	-	-	-	-	-	-	-	-	-	-	19260	1800	<b>21060</b>
EFFORT*		-	-	-	-	1	-	-	-	1	7	32	12	<b>53</b>

**Table 5.** Bluefin tuna and Albacore catch and monthly effort. Spanish bait boat in areas close to the Strait of Gibraltar during 1998.

## HAND LINE (HAND)

SPAIN 1998

## Alborán Sea (Mediterranean)

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
BFT*	NUMBER	-	-	81	63	73	-	-	21	-	-	111	13	362
	WEIGHT	-	-	11248	7826	12095	-	-	3085	-	-	8480	977	43711
EFFORT*		-	-	81	63	33	-	-	12	-	-	83	10	282

Note: Fishing effort directed to target species (\*) for this gear.

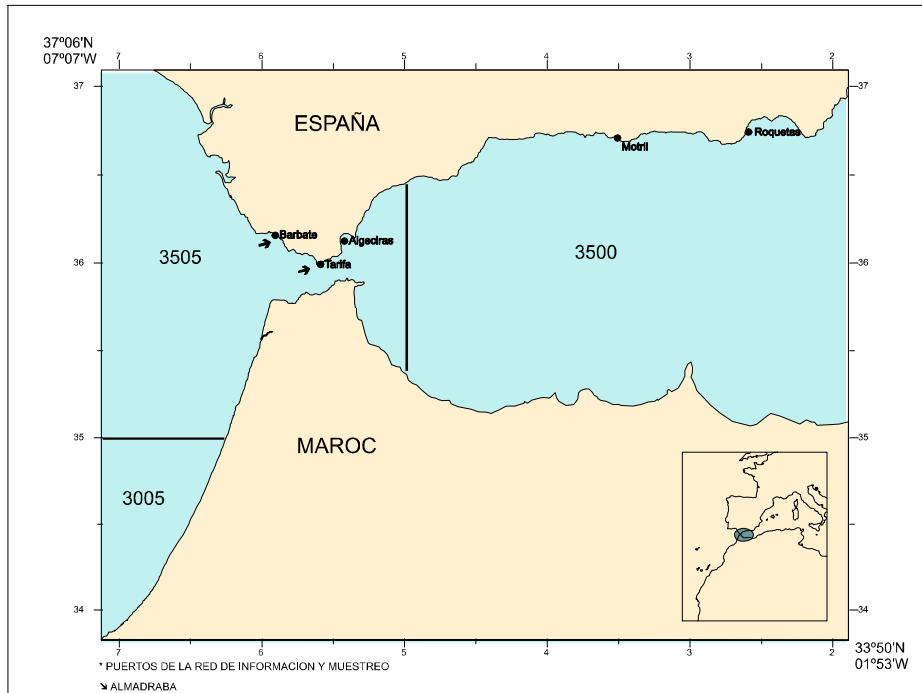
**Table 6.** Bluefin tuna catch and monthly effort. Spanish hand line in the Alborán Sea (Mediterranean) during 1998.

## Strait of Gibraltar

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
BFT*	NUMBER	-	-	-	-	-	35	93	10	-	-	-	-	138
	WEIGHT	-	-	-	-	-	6717	19214	1819	-	-	-	-	27750
EFFORT*		-	-	-	-	-	23	64	6	-	-	-	-	93

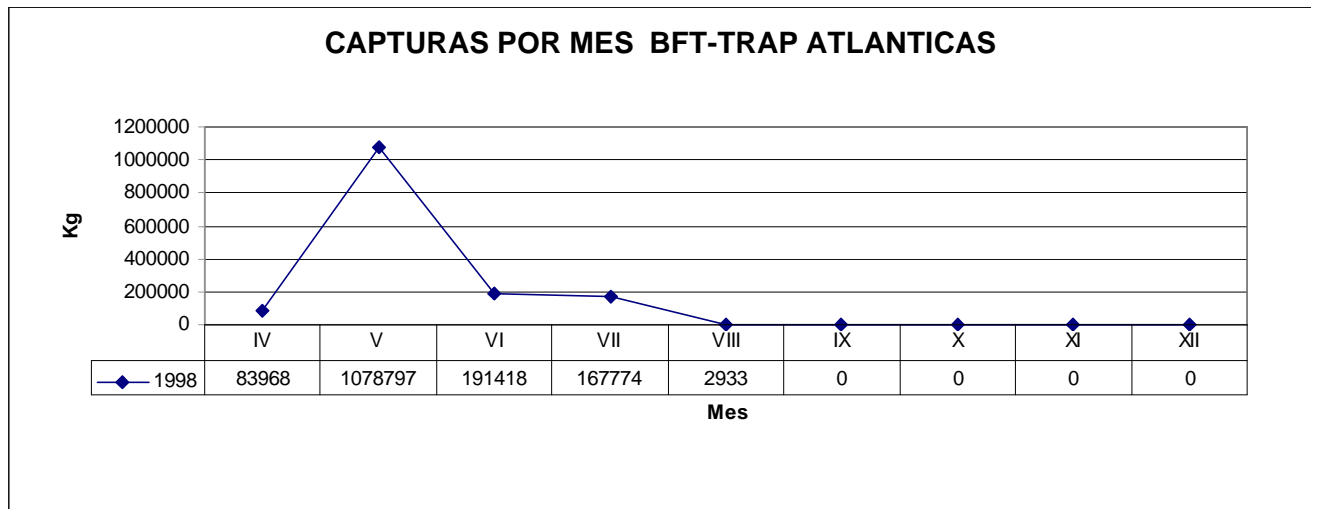
Note: Fishing effort directed to target species (\*) for this gear.

**Table 7.** Bluefin tuna catch and monthly effort. Spanish hand line in the Strait of Gibraltar during 1998.

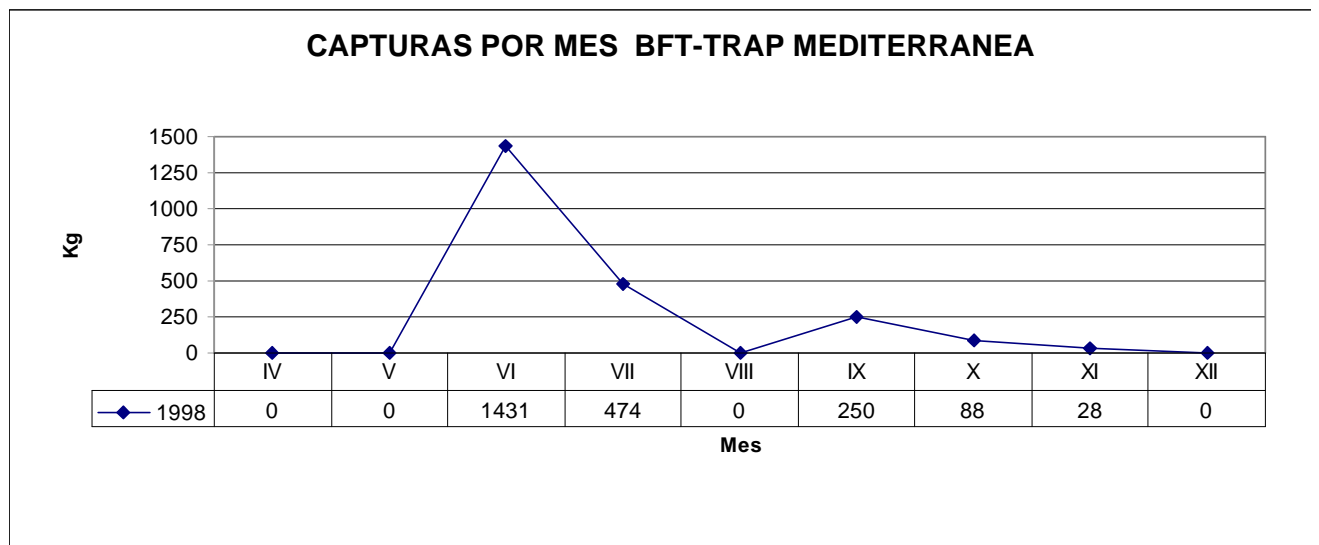


**Figure 25.** Spanish Sampling Network landing ports and traps. 1998.

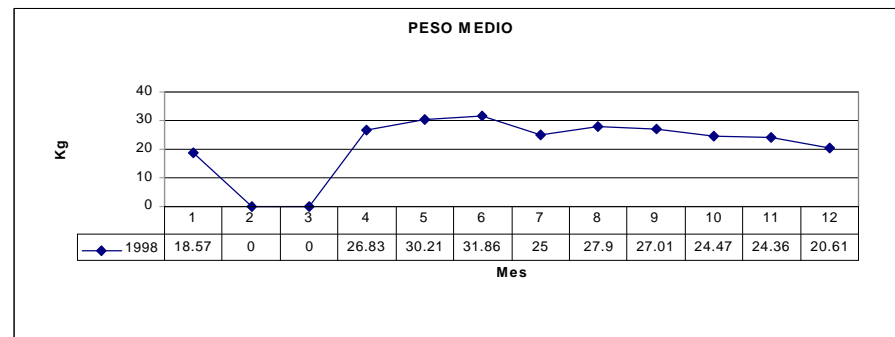
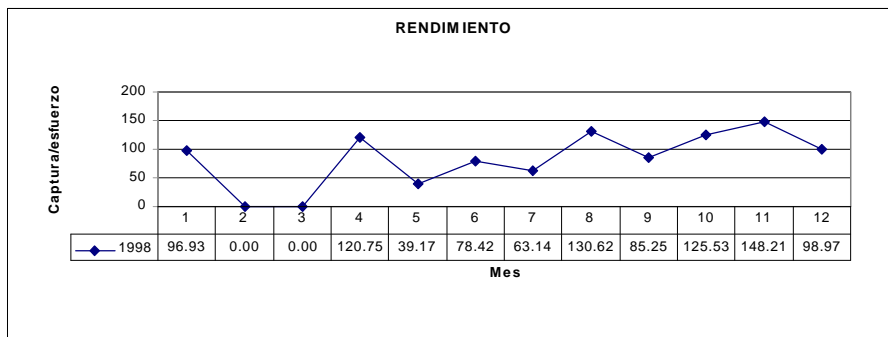
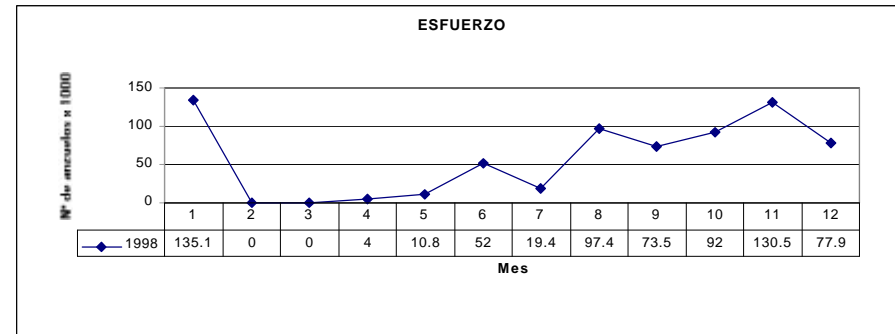
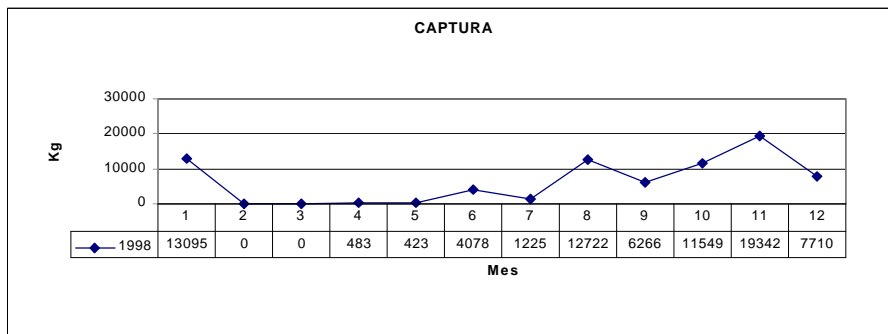
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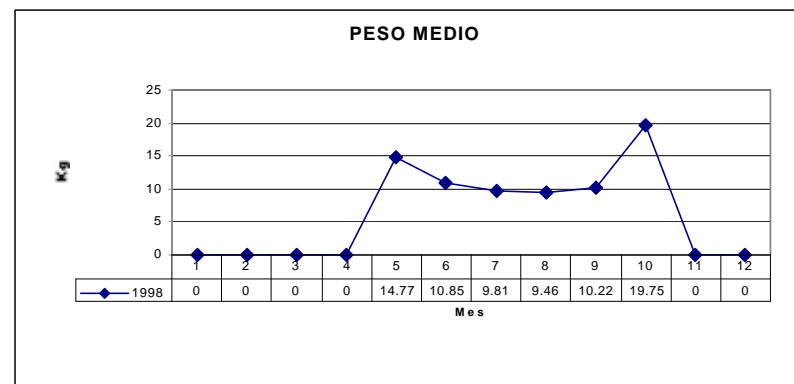
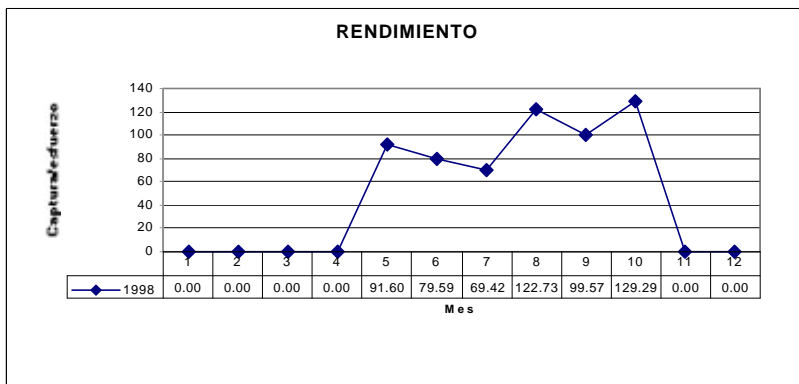
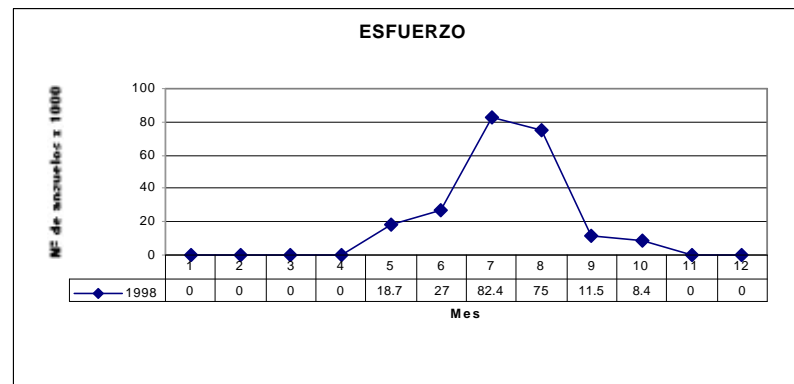
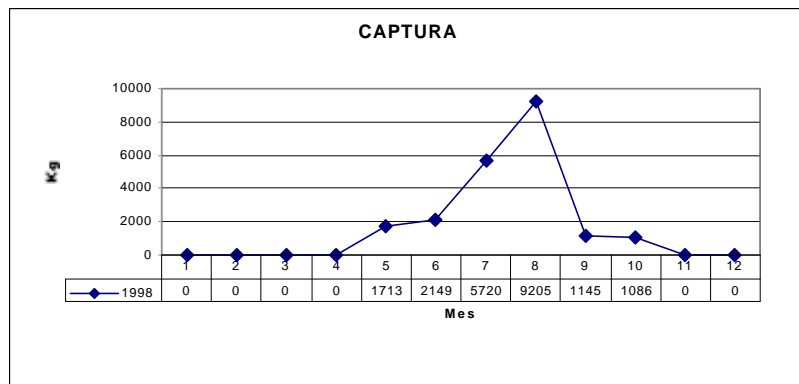
**MEDITERRANEAN**



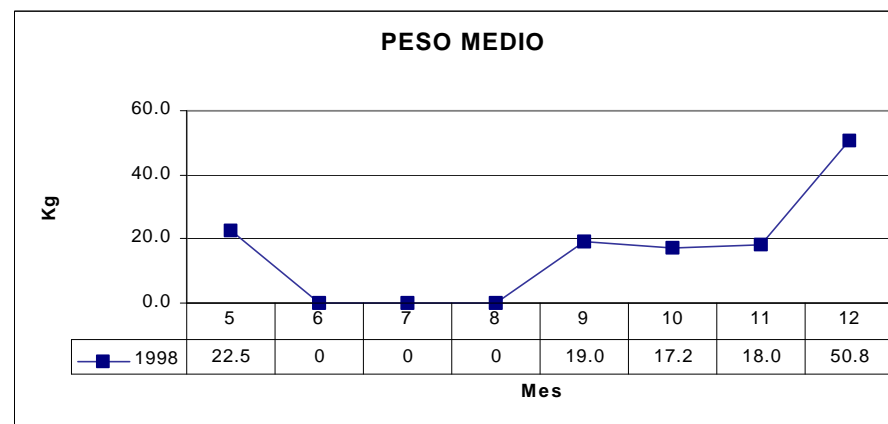
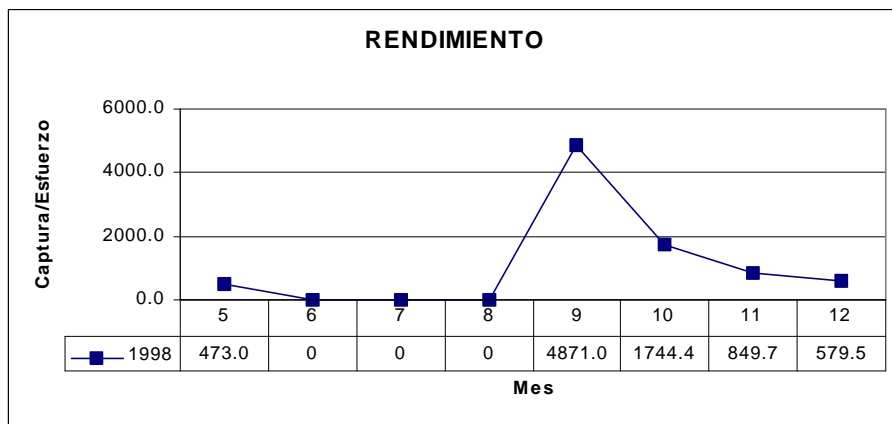
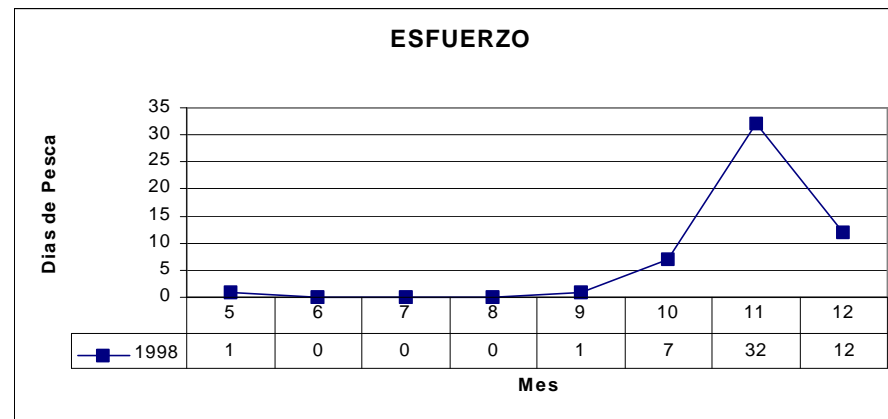
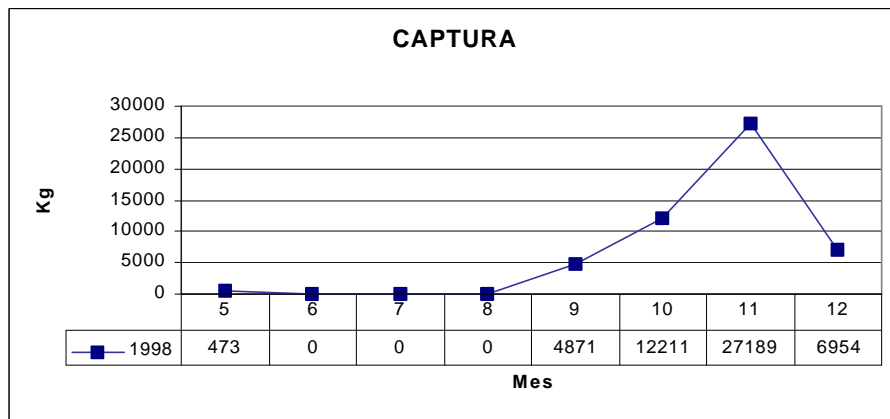
**Figure 26.** Bluefin tuna monthly catch by the Spanish traps located in the atlantic and mediterranean areas close to the Strait of Gibraltar.



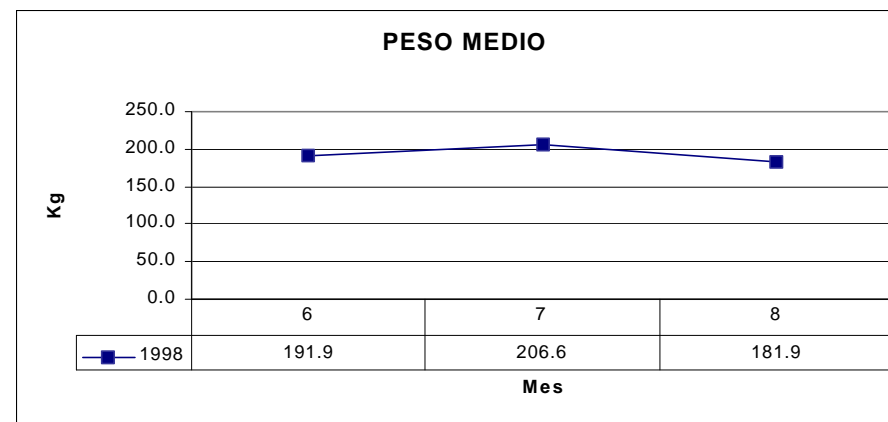
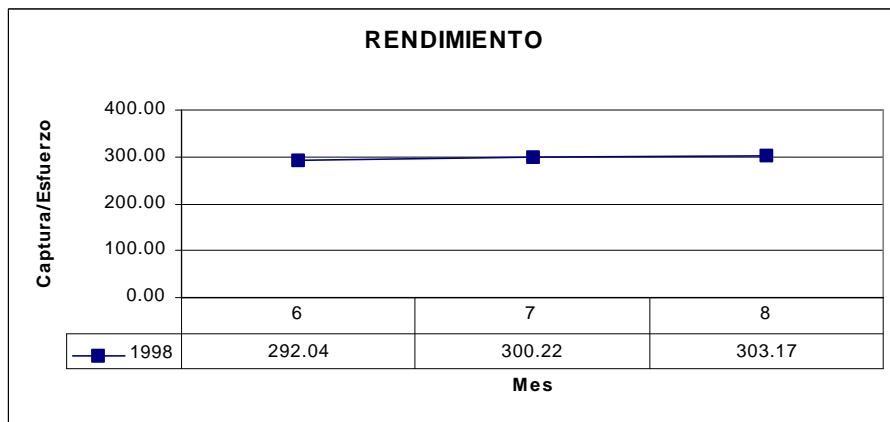
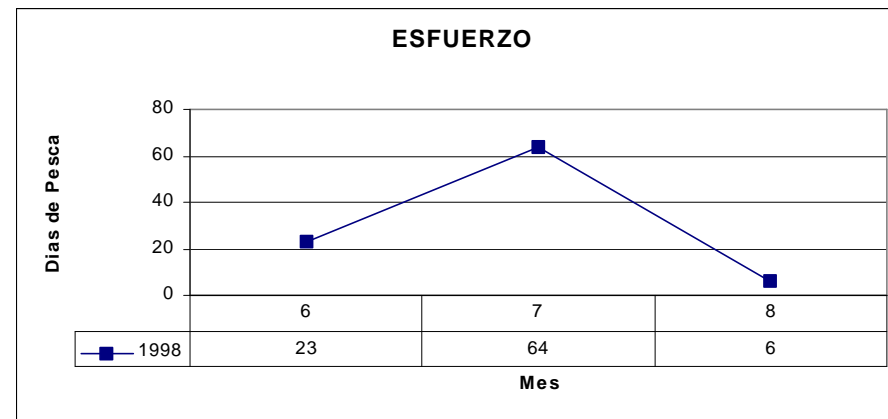
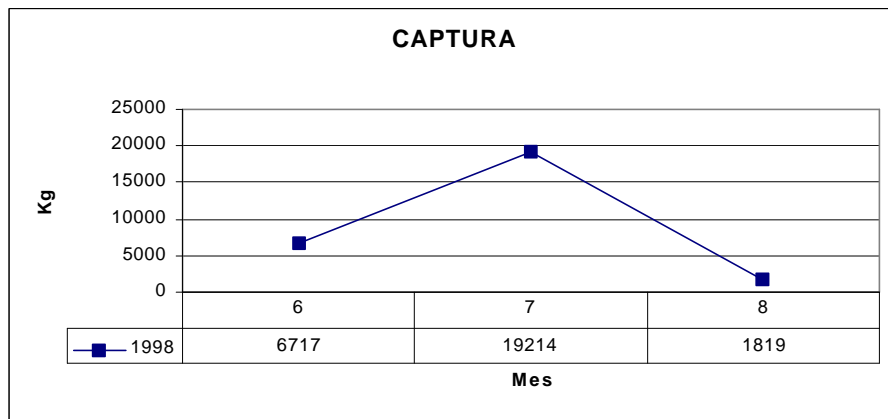
**Figure 27.-** Swordfish catch, effort, yield and mean weight. Spanish longline (LLHB) in the atlantic area close to the Strait of Gibraltar during 1998.



**Figure 28.-** Swordfish monthly catch, effort, yield and mean weight. Spanish longline (LLHB) in the Alborán Sea during 1998.

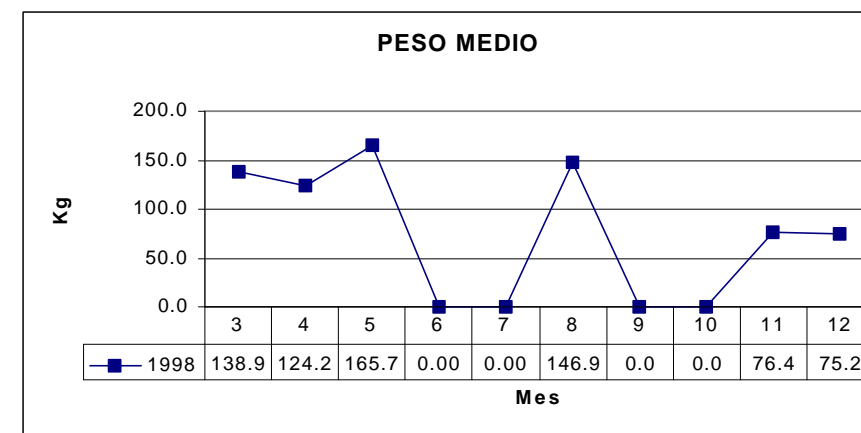
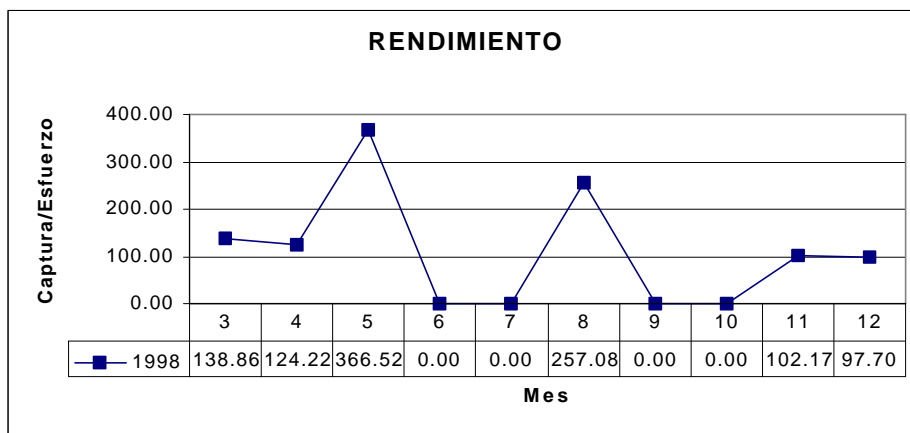
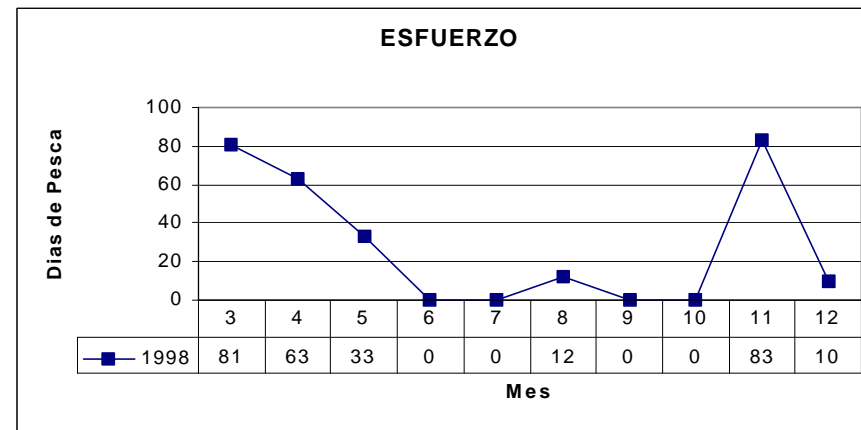
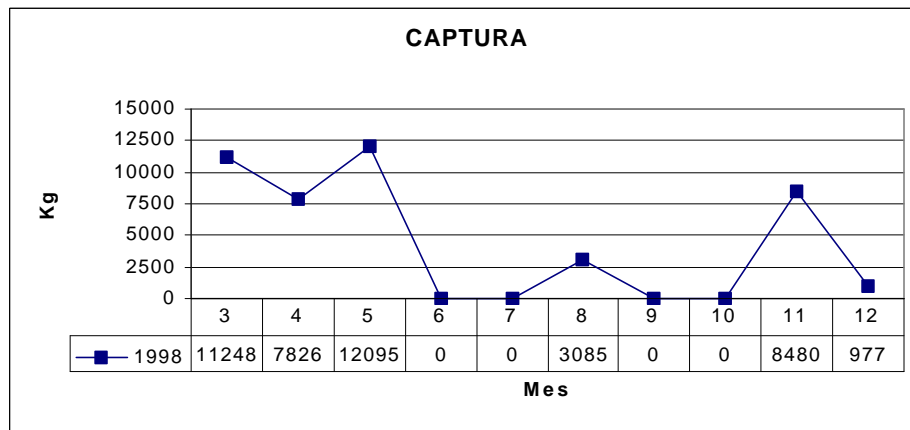


**Figure 29.-** Bluefin tuna catch and effort. Spanish bait boat in the area influenced by the Strait of Gibraltar during 1998.



**Figure 30.-** Bluefin tuna catch. Spanish hand line (HAND) in the Strait of Gibraltar area during 1998.





**Figure 31.-** Bluefin tuna catch. Spanish hand line (HAND) in the Western Mediterranean (Mar de Alborán) during 1998.

## TASK 3.- CATCH AND FISHING EFFORT. MOROCCO

### 3.1 SAMPLING STRATEGY FOR FISHING INFORMATION

Data on swordfish landing at Nador and Tanger were provided by the *Fishing National Office* (Office National des Pêches) which is the responsible for fish marketing at landing ports. Data on daily fishing effort were collected by informers at landing ports.

Data on bluefin tuna catch by the Moroccan traps were recorded and provided by the traps authorized dealers. As regards “Principé” trap, data on catch were recorded by the *Délégation Régional des Pêches maritimes*.

On the other hand, data on bluefin tuna catch by hand line in the area of the Strait of Gibraltar were obtained by means of interview with the skippers. Data on small tuna were not reported because of the low yield for year 1998.

### 3.2 TRAPS

#### 3.2.1 Morocco

Total bluefin catch by traps during 1998 amounted to 1520 MT, with fish mean weight of about 221 kg. Total fishing effort amounted to 424 fishing days. **Tables 8 and 9** show monthly yield and fishing effort by area.

It must be remarked that almost the whole catch, about 89%, was carried out by the three traps located in the Atlantic area. As regards “Principé” trap, bluefin tuna catch was mainly composed of juvenile fish with mean weight of about 1.6 kg.

### 3.3 Driftness gill net

#### 3.3.1 Morocco

Total swordfish catch by driftness gill net amounted to 3019 MT of which a percentage of about 80% took place in the area of the Strait of Gibraltar. Table III shows monthly catch and effort for the Mediterranean Sea.

Associated species for this fishing gear were sharks: *Alopias vulpinus* and *Isurus oxyrinchus*, and frigate tuna, *Auxis* sp.

### 3.4 HAND LINE

#### 3.4.1 Morocco

Bluefin tuna total catch by hand line amounted to 545 MT for 1998 in the area of the Strait of Gibraltar.

**Table 11** shows bluefin tuna monthly catch, in number of fish and weight. Data on fishing effort are not reported because there is not an authorized organism responsible for the data collection. Anyway, the number of operative units was estimated to be about 114 vessels.

## TRAPS (TRAP)

MAROC 1998

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
BFT*	NOMBRE	-	-	-	966	5129	691	-	-	-	-	-	-	6816
	POIDS (Kg)	-	-	-	236347	1157592	124061	-	-	-	-	-	-	151800
Effort*		-	-	-	36	93	27	-	-	-	-	-	-	156

\* Fishing effort: days of bunt set

**Table 8.-** Bluefin tuna monthly catch and effort. Moroccan atlantic traps during 1998.

## TRAPS (TRAP)

MAROC 1998

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
<b>BFT*</b>	NOMBRE	-	-	-	-					1301				<b>1301</b>
	POIDS (Kg)	-	-	-	-					167563				<b>167563</b>
<b>FRI</b>	NOMBRE	-	-	-	-					537626				<b>537626</b>
	POIDS (Kg)	-	-	-	-					445069				<b>445069</b>
<b>SKJ</b>	NOMBRE	-	-	-	-					2086				<b>2086</b>
	POIDS (Kg)	-	-	-	-					4172				<b>4172</b>
<b>BON</b>	NOMBRE	-	-	-	-					2338				<b>2338</b>
	POIDS (Kg)	-	-	-	-					1754				<b>1754</b>
<b>LTA</b>	NOMBRE	-	-	-	-					48137				<b>48137</b>
	POIDS (Kg)	-	-	-	-					48137				<b>48137</b>
<b>SWO</b>	NOMBRE	-	-	-	-					2				<b>2</b>
	POIDS (Kg)	-	-	-	-					42				<b>42</b>
<b>Effort*</b>		-	-	-	-					268				<b>268</b>

**Table 9.-** Bluefin tuna monthly catch and effort. Moroccan mediterranean traps during 1998.

## GILL NET (GN)

MAROC 1998

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
SWO*	NOMBRE	-	-	-	-	-	-	-	-	-	-	-	-	-
	POIDS (Kg)	24454	86645	167253	537986	1036121	366809	190499	342958	72795	137063	43474	22943	<b>3019000</b>
Effort*		-	-	-	1039	1670	672	412	793	190	-	-	-	<b>4776</b>

**Table 10.-** Swordfish monthly catch and effort. Moroccan mediterranean drift gill net during 1998.

SPECIES		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	TOTAL
<b>BFT*</b>	NOMBRE	284	32	356	482	122	144	1152	5556	479	795	155	32	<b>9589</b>
	POIDS (Kg)	17146	1908	34330	42865	20220	7560	215222	141156	29405	21442	10282	2909	<b>545105</b>
<b>Effort*</b>		-	-	-	-	-	-	-	-	-	-	-	-	-

**Table 11.-** Bluefin tuna catch in number and weight. Moroccan mediterranean hand line during 1998.

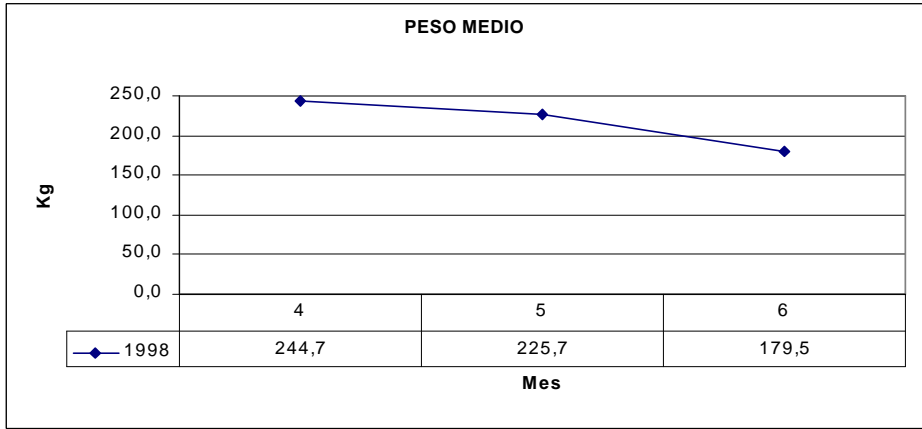
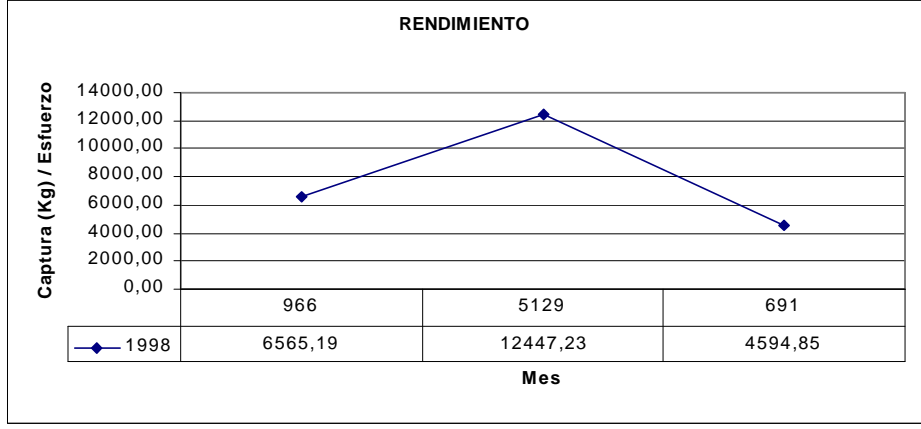
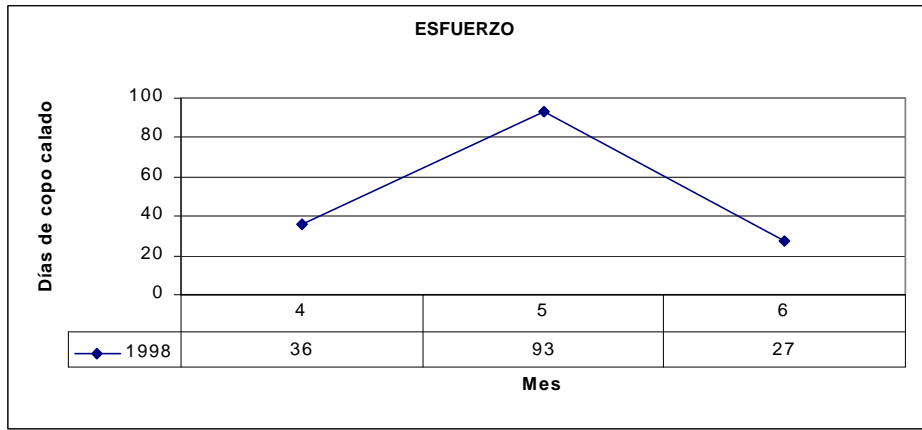
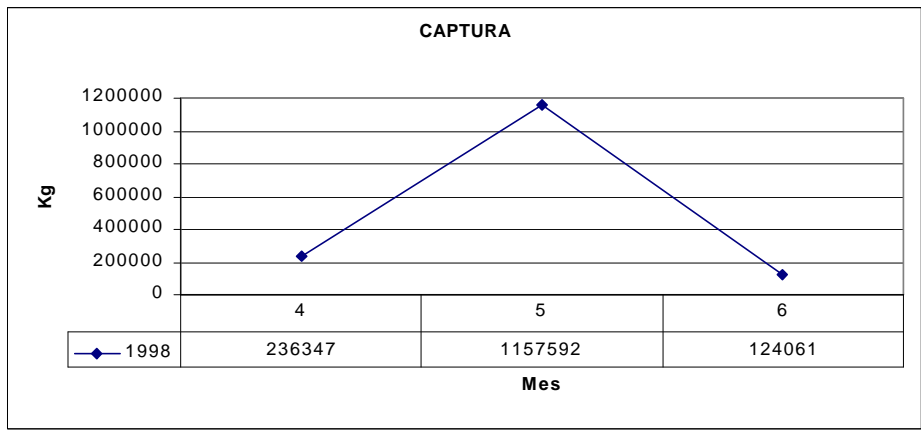


Figure corresponding to table 8.- Bluefin tuna catch, effort, yield and mean weight. Moroccan traps in the Atlantic during 1998.



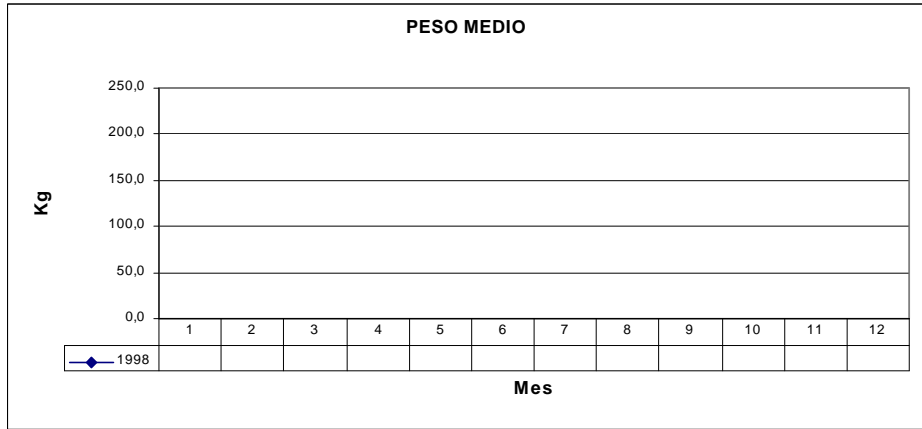
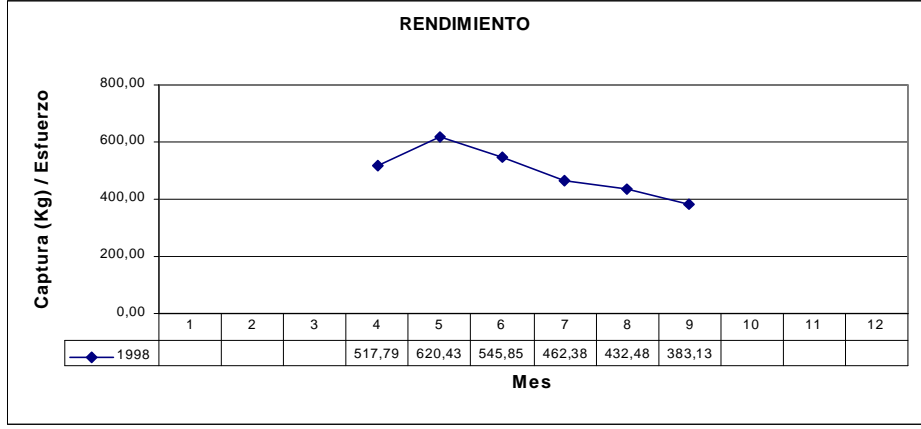
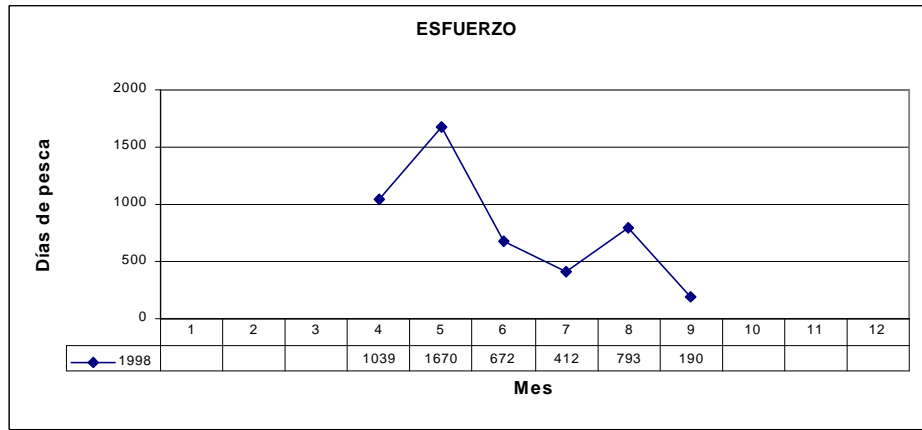
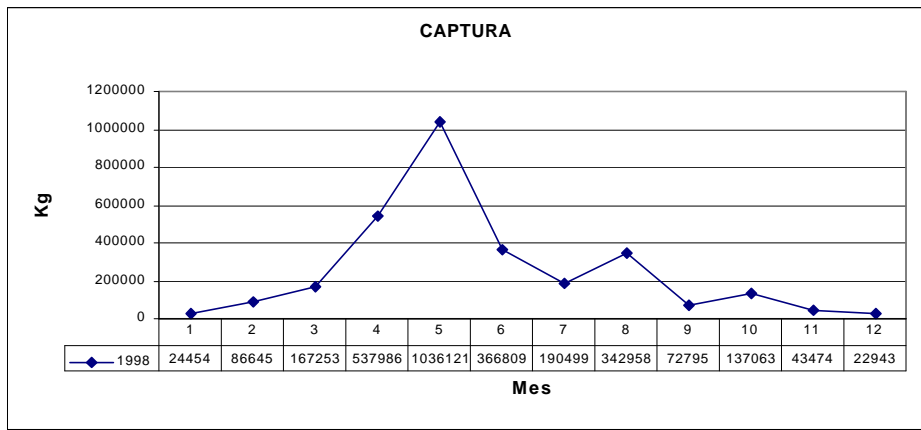
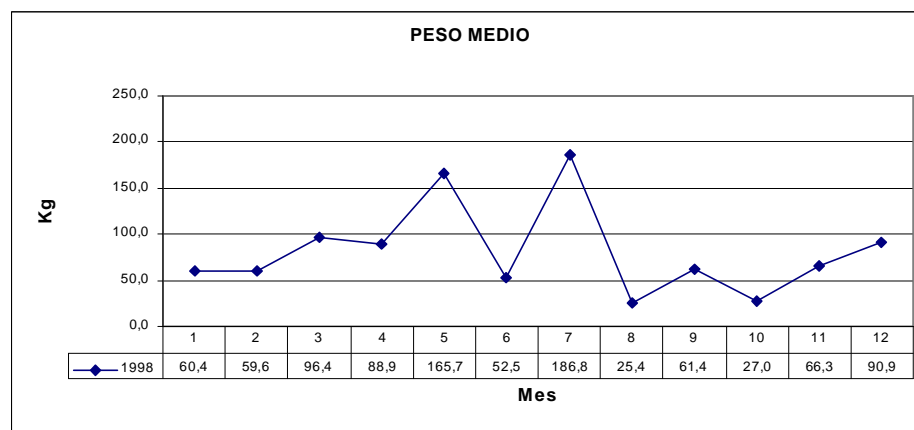
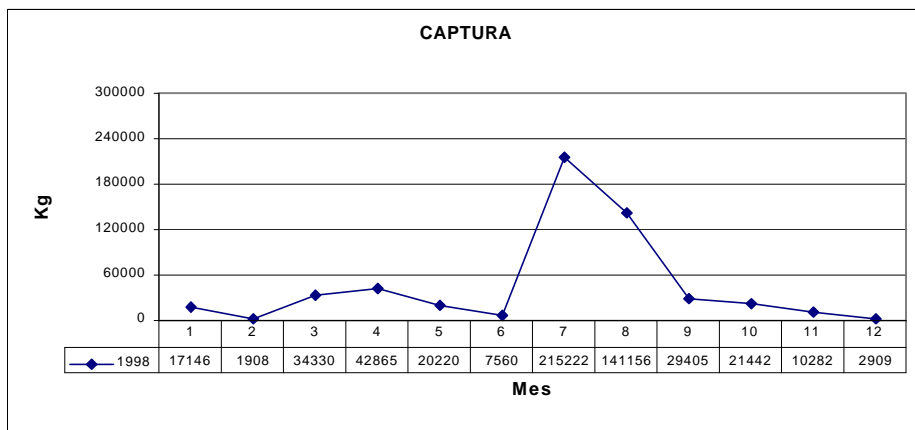


Figure corresponding to table 10.- Swordfish catch, effort, and yield. Moroccan gill net in the Mediterranean during 1998.



**Figure corresponding to table 11.- Bluefin tuna catch, and mean weight. Moroccan hand line (HAND) in the Mediterranean during 1998.**