

REVIEW OF THE SWORDFISH FISHING 1986-1991

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1. INTRODUCTION

The present study is carried out again in a rather hasty way, in order to meet some of the needs of the 2nd GFCM/ICCAT Expert Consultation on Stocks of Large Pelagic Fishes in the Mediterranean Sea which will be held at Iraklion, Kzete (Greece) this September.

This study covers the Swordfish Fishing in Cyprus for the years 1986-1991. In fact it is based on Supplement I, with the addition of the years 1990, 1991.

Although the object of the study is the period 86-91, for practical reasons, the tables and the graphs cited have been unified and cover the whole period between 1976-1991. Some comparisons are made between the first period 1976-1985 and 1986-1991. In this way, a reader can have a definite picture on the local Swordfish fishery since its commencement till today.

2. CYPRUS FISHING INDUSTRY

The various subsectors of the Cyprus Fishing Industry with their respective production are seen on Table I. (Fish Production, 1980-1991).

3. SWORDFISH FISHERY (see supplement I).3.1 Vessels (see supplement I)4. STATISTICS (see supplement I)4.1 Fishing Effort (Table 3. Fishing Effort and Production 1986-1991).4.2 Production-Productivity (See previous reports)

Looking into Fig. 3, Mean Weight of Fish, 1976-1991, although there is a decline, it seems that this can be distinguished into three periods. (a) 1976-1981 when the mean weight of fish reduced slightly from 59 to 55kg. (b) 1982-84 when the mean weight was between 44-47kg and (c) 1986-91 when the mean weight fluctuated between 37-34 kg.

The catch/hook (Fig.4) shows that during the last years (87-91) it has been stabilised between 100-130 g/hook. The combination of the steady mean weight of fish and catch/hook probably indicates stability of our swordfish stocks.

4.2.1 Production-Productivity by Month (see previous reports).

From Fig. 5, we see that during the first period 1976-1985 there were privileged months, May, June, July, with higher production and productivity. During the second

period, 1986-1989, although the situation was similar we had smaller differences between the traditionally privileged months and the other months. Coming now to the third period, 1990-1991, although the period is just two years, the trend for a rather smoother distribution of the production through the months continues while the productivity is almost the same throughout the months.

From fishing point of view, looking into the three periods, it is easily realised that systematic fishing during the first period was carried out only during the summer period. While gradually during the second and third period systematic fishing is carried out almost all the year round. This development supports full time occupation which leads to the improvement of the whole Swordfish Fishing Industry.

Looking into Fig. 6 we see that, the two curves corresponding to the periods, 1986-1989 and 1990-1991, are facsimile for almost all the months. There is one exception referring to the month of February of the second period when the average weight of fish increases by about 12 kg but it is negligible as it concerns only 7 and 4 fish, respectively.

There is also another exception referring to the last 3 fishing months of the two periods and again we hopefully notice that in spite of what we have been used so far the curve is going upwards showing increase of the mean weight of fish.

Now taking into consideration that for a period of six years (1986-1991) our swordfish stocks present the following characteristics:

- a) Steady mean weight of fish for all the years and months,
- b) Increase of the mean weight of fish for some periods of the years and specifically at the end of the fishing season,

- c) The production involved during this period 1986-1991 is quite big, 833 tons,

and assuming that the fishing pressure on the stocks remain the same and there is not any deterioration of the environment in the near future it could be said that the stocks are stabilizing and are at a recovery stage which looks to be very promising.

From Fig. 7 it is seen that the catch/hook during the first period had fluctuations through the months with higher values during summer.

During the other periods besides the fact that the productivity was much less there were not any substantial fluctuations. This has practical value for fishermen because they can fish at any time of the year profitably provided the weather allows it. Something that it was doubtful in the past.

4.2.2 Production-Productivity by Area (see Supplement I)

There is no need today to make any analysis by area as vessels, nowadays, fish in all areas indiscriminately while in the past due to size most of the vessels were operating in areas, close to their fishing stations.

Management Measures

The measures suggested in the previous reports were introduced by Legislative Act 273/90. Measures introduced so far aim, however, the safety of fishermen, the improvement of the Swordfish fleet etc.

Substantial management measure is the closure of the territorial Swordfishing during winter for the protection of the young fish, but we repeat that in order to have results we should act on a regional basis.

Table 1

Fish Production, 1980-1991

SECTOR	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	m.tons	m.tons	m.tons	m.tons	m.tons	m.tons	m.tons	m.tons	m.tons	m.tons	m.tons	m.tons
Inshore Fishery	782	831	880	1,252	1,487	1,544	1,541	1,610	1,570	1,584	1,598	1,650
Local Trawl Fishery	256	244	273	451	465	483	499	482	492	510	518	550
Intern. Trawl Fishery	190	267	282	279	183	274	332	353	311	297	283	250
Swordfish Fishery	79	88	124	33	72	80	176	106	145	169	219	190
Trout Culture	31	36	46	46	56	53	53	47	51	56	73	70
Marine Culture	-	-	-	-	-	-	-	3	6	30	50	57
Total	1,338	1,466	1,605	2,061	2,263	2,434	2,601	2,601	2,575	2,646	2,741	2,767

(emtab11)

196

Table 2

Development of swordfish Fishing Fleet, 1977-1991

Year	No. Of Vessels	Total Length (ft)	Average Length/Boat	Up to 30'		31 - 35'		36 - 40'		Over 40'	
				No.	%	No.	%	No.	%	No.	%
1977	39	1168	29,95	27	69	8	21	2	5	2	5
1978	22	685	31,14	14	64	6	27	-	-	2	9
1979	26	832	32,00	14	54	6	23	1	4	5	19
1980	24	746	32,75	14	58	4	17	1	4	5	21
1981	20	674	33,70	8	40	5	25	2	10	5	25
1982	14	506	36,14	3	21	4	29	2	14	5	36
1983	5	207	41,40	-	-	-	-	1	20	4	80
1984	15	520	36,67	3	20	5	33	3	20	4	27
1985	15	526	35,67	3	19	4	27	4	27	4	27
1986	32	1156	36,13	9	28	6	19	6	10	11	34
1987	18	777	43,17	2	11	1	6	7	39	8	44
1988	24	1072	44,67	-	-	2	8	5	21	17	71
1989	20	970	48,50	1	5	-	-	2	10	17	85
1990	20	949	47,45	-	-	-	-	3	15	17	85
1991	22	1041	47,32	-	-	-	-	3	14	19	86

Note: The number of vessels in this table is lower than that in Table 3 because the Trawlers are not included here

(emtab2)

Table: 3

FISHING EFFORT AND PRODUCTION 1986-1991

Year	EFFORT					PRODUCTION								
	No of Boats	Work Days	No. of Hooks	AVERAGE		SWORDFISH					BY CATCH		TOTAL CATCH	
				No. of W.D./ Boat	No. of Hooks/ Boat/Day	Weight (Kg)	No. of Fish	Mean Weight	Catch/ W.D.	Catch/ Hook	Weight	Weight	Catch/ W.D.	Catch/ Hook
1986	34	1101	611951	32,4	556	154377	4168	37,04	140,22	0,25	21292	175669	159,55	0,29
1987	19	681	758110	35,8	1.110	83528	2269	31,81	122,65	0,11	22036	105564	155,01	0,14
1988	25	795	973600	31,8	1.225	121121	3236	37,43	152,35	0,12	24220	145341	182,82	0,15
1989	20	1215	134090	60,7	1.104	139300	4296	32,43	114,65	0,10	29794	169094	139,17	0,13
1990	20	1112	1296140	55,6	1.166	172597	4993	34,57	155,21	0,13	45968	218565	196,55	0,17
1991	22	1205	1368570	54,8	1.136	162380	4588	35,39	134,75	0,12	27916	190296	157,92	0,14

(EMTABL3)

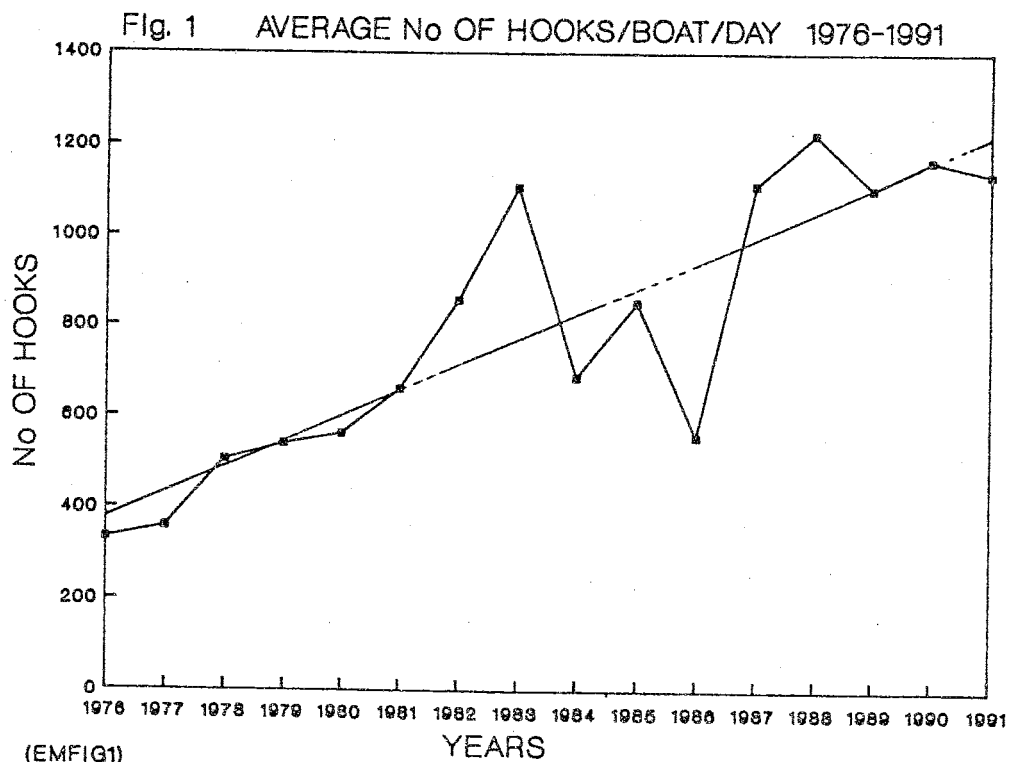


Table: 3(a)

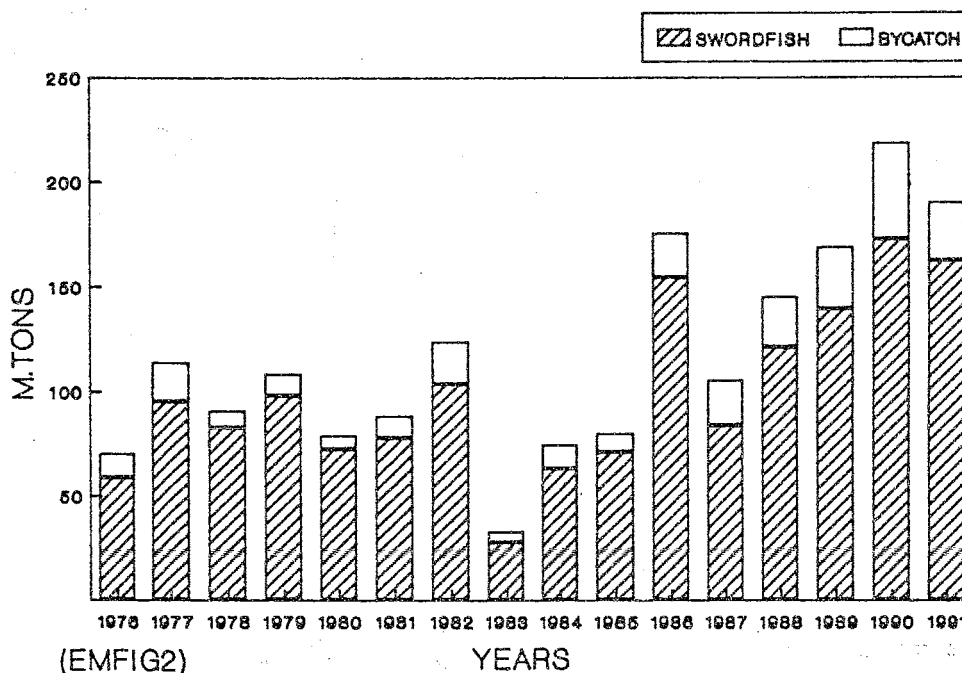
FISHING EFFORT AND PRODUCTION 1976-1991

Year	EFFORT					PRODUCTION								
	No of Boats	Wark. Days	No. of Hooks	AVERAGE		SWORDFISH					BY CATCH	TOTAL CATCH		
				W.D./ Boat	Hooks/ Boat/Day	Weight (Kg)	No. of Fish	Mean Weight	Catch/ W.D.	Catch/ Hook	Weight	Weight	Catch/ W.D.	Catch/ Hook
1976	43	369	122800	8,6	333	58634	986	59,5	158,9	0,48	11504	70138	190,1	0,57
1977	44	809	290161	18,4	359	95079	1642	57,9	117,5	0,33	18853	113932	140,8	0,39
1978	23	396	200278	17,2	506	82488	1440	57,3	208,3	0,41	8230	90718	229,1	0,45
1979	27	475	256938	17,6	541	97983	1756	55,7	206,1	0,38	10543	108526	228,5	0,42
1980	24	347	195422	14,5	563	72155	1297	55,6	207,9	0,37	6635	78790	227,1	0,40
1981	20	350	231276	17,5	661	77669	1413	55,0	221,9	0,34	10653	88322	252,3	0,38
1982	15	490	420490	32,7	858	103479	2343	44,2	211,2	0,25	20360	123839	252,7	0,29
1983	7	174	192750	24,9	1108	27587	598	46,1	158,5	0,14	5243	32830	188,7	0,17
1984	16	318	218388	19,9	687	62915	1312	47,9	197,8	0,29	11566	74481	234,2	0,34
1985	16	291	248230	18,2	853	70865	1701	41,7	243,5	0,29	9106	79971	274,8	0,32
1986	34	1101	611951	32,4	556	154377	4168	37,0	140,2	0,25	21292	175669	159,6	0,29
1987	19	681	758110	35,8	1113	83528	2269	36,8	122,7	0,11	22036	105564	155,0	0,14
1988	25	795	973600	31,8	1225	121121	3236	37,4	152,4	0,12	24220	145341	182,8	0,15
1989	20	1215	1340910	60,7	1104	139300	4296	32,4	114,7	0,10	29794	169094	139,2	0,13
1990	20	1112	1296140	55,6	1166	172597	4993	34,6	155,2	0,13	45968	218565	196,6	0,17
1991	22	1205	1366570	54,8	1136	162380	4588	35,4	184,8	0,12	27916	190296	157,9	0,14

(EMTBL3A)

198

Fig. 2 PRODUCTION IN TONS 1976-1991



(EMFIG2)

YEARS

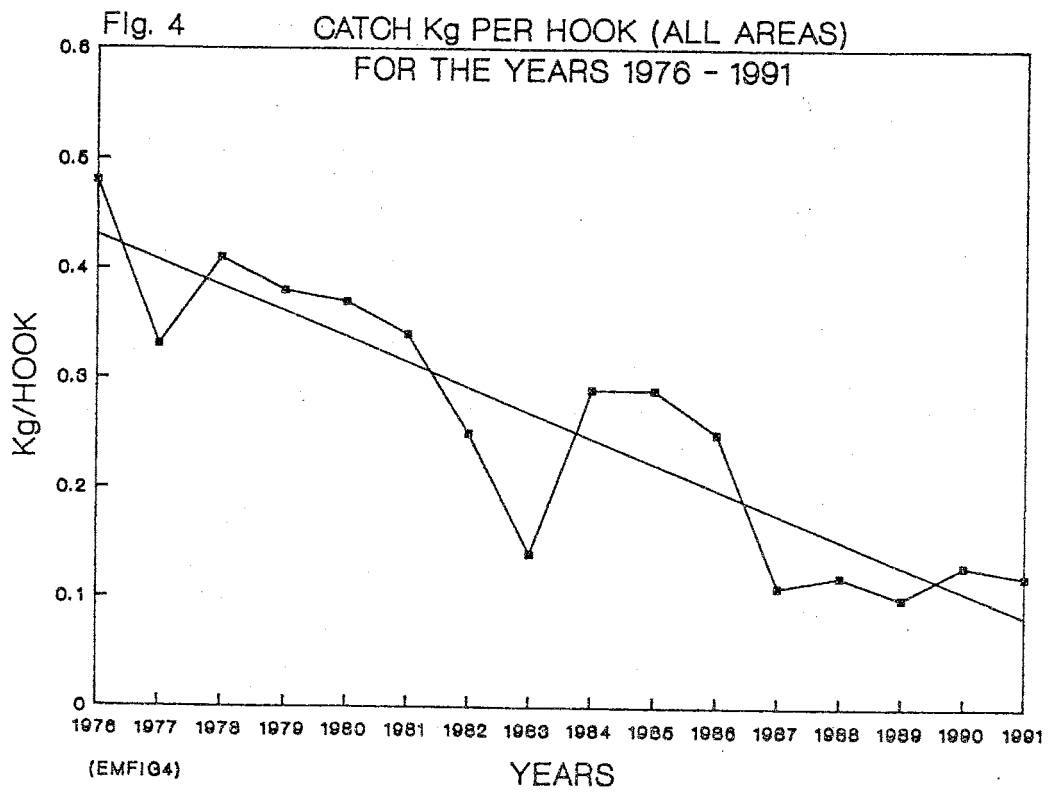
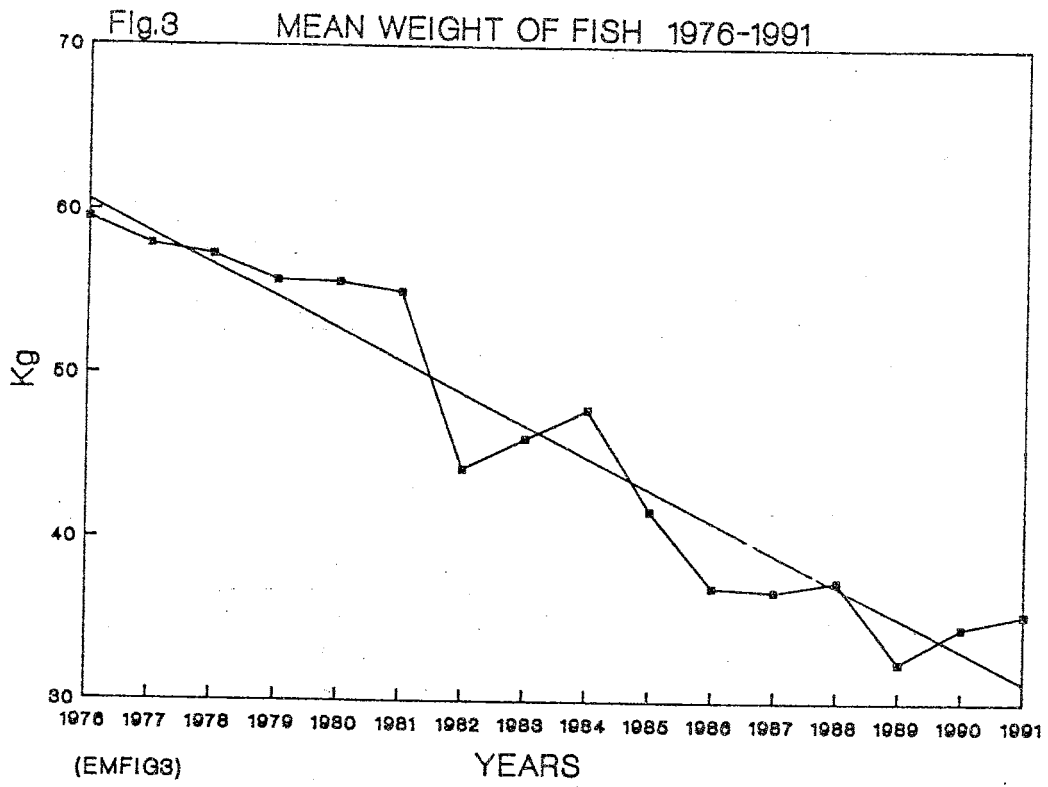


Table:4 EFFORT AND PRODUCTION BY MONTH FOR THE PERIOD 1976-1985

MONTH	EFFORT		P R O D U C T I O N (SWORDFISH)					
	WORK. DAYS	No OF HOOKS	WEIGHT Kg	No OF FISH	MEAN Wt Kg	CATCH/ W.DAY	CATCH/ HOOK	% ON TOTAL CATCH
JAN	4	800	46	3	15,33	11,50	0,06	
FEB	15	4.310	863	15	57,53	57,53	0,20	0,12
MAR	72	20.835	6.054	106	57,11	84,08	0,29	0,81
APR	131	80.832	19.604	326	60,13	149,65	0,24	2,62
MAY	881	508.171	170.798	2.922	58,45	193,87	0,34	22,81
JUN	1130	720.255	243.691	4.416	55,18	215,66	0,34	32,54
JUL	808	502.034	165.969	3.274	50,69	205,41	0,33	22,16
AUG	278	144.536	35.987	739	48,70	129,45	0,25	4,81
SEP	307	177.290	42.417	1.135	37,37	138,17	0,24	5,66
OCT	308	182.670	53.275	1.352	39,40	172,97	0,29	7,11
NOV	85	34.700	10.151	200	50,76	119,42	0,29	1,36
DEC	0	0	0	0	0,00	0,00	0,00	0,00

(PL:EMTBL4)

Table:4(a) EFFORT AND PRODUCTION BY MONTH FOR THE PERIOD 1986-1989

MONTH	EFFORT		P R O D U C T I O N (SWORDFISH)					
	WORK. DAYS	No OF HOOKS	WEIGHT Kg	No OF FISH	MEAN Wt Kg	CATCH/ W.DAY	CATCH/ HOOK	% ON TOTAL CATCH
JAN	0	0	0	0	0,00	0,00	0,00	
FEB	2	2.800	253	7	36,14	126,50	0,09	0,05
MAR	47	40.525	4.733	146	32,42	100,70	0,12	0,95
APR	358	395.710	38.927	1.060	36,72	108,73	0,10	7,81
MAY	602	628.020	86.297	2.275	37,93	143,35	0,14	17,32
JUN	667	689.120	109.358	2.740	39,91	163,96	0,16	21,95
JUL	720	747.895	110.565	2.854	38,74	153,56	0,15	22,19
AUG	347	389.380	42.303	1.166	36,28	121,91	0,11	8,49
SEP	416	430.100	52.284	1.644	31,80	125,68	0,12	10,49
OCT	565	281.341	40.467	1.428	28,34	71,62	0,14	8,12
NOV	58	69.290	11.329	543	20,86	195,33	0,16	2,27
DEC	10	10.700	1.810	106	17,08	181,00	0,17	0,36

(PL:EMTBL4B)

Table:4(b) EFFORT AND PRODUCTION BY MONTH FOR THE PERIOD 1990-1991

MONTH	EFFORT		P R O D U C T I O N (SWORDFISH)					
	WORK. DAYS	No OF HOOKS	WEIGHT Kg	No OF FISH	MEAN Wt Kg	CATCH/ W.DAY	CATCH/ HOOK	% ON TOTAL CATCH
JAN	5	4.000	475	13	36,54	95,00	0,12	0,14
FEB	2	2.000	192	4	48,00	96,00	0,10	0,06
MAR	60	65.850	8.263	259	31,90	137,72	0,13	2,47
APR	150	169.020	15.827	470	33,67	105,51	0,09	4,72
MAY	311	367.440	44.509	1.174	37,91	143,12	0,12	13,29
JUN	409	467.750	59.748	1.559	38,32	146,08	0,13	17,84
JUL	359	424.640	51.925	1.370	37,90	144,64	0,12	15,50
AUG	309	370.700	49.413	1.515	32,62	159,91	0,13	14,75
SEP	353	398.950	51.240	1.495	34,27	145,16	0,13	15,30
OCT	246	272.480	34.633	1.012	34,22	140,78	0,13	10,34
NOV	113	121.880	18.752	710	26,41	165,95	0,15	5,60
DEC	0	0	0	0	0,00	0,00	0,00	0,00

(PL:EMTBL4C)

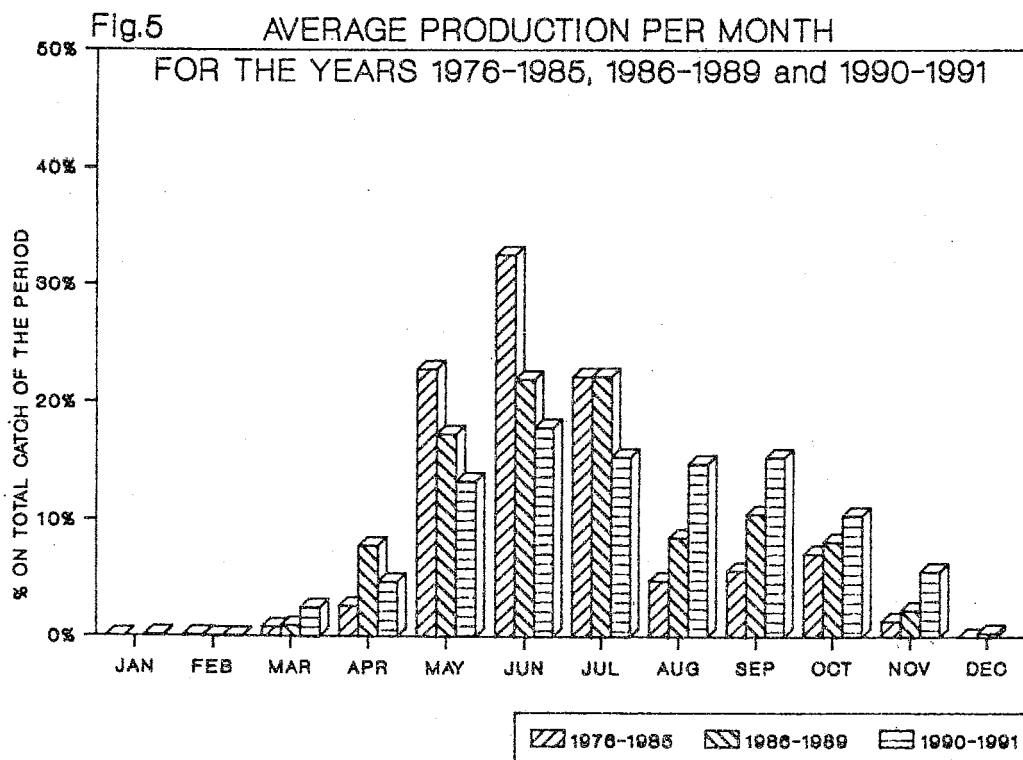


Fig. 6 AVERAGE INDIVIDUAL WT OF SWORDFISH (Kg) BY MONTH

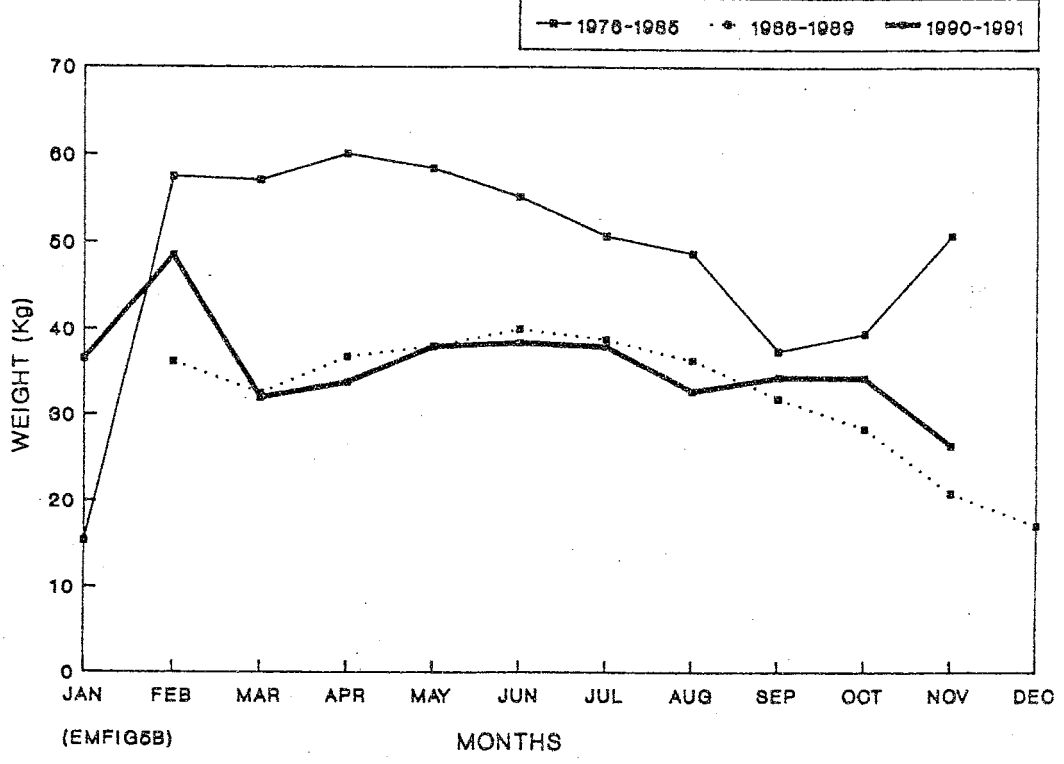


Fig. 7 PRODUCTIVITY - CATCH/HOOK (Kg) BY MONTH

