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OBSERVATIONS ON CATCH OF THE MOST IMPORTANT FISHES ALONG THE EGYPTIAN CONTINENTAL SHELF IN THE SOUTH-EASTERN PART OF THE MEDITERRANEAN SEA.

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ABSTRACT

This study revealed that after the construction of the Aswan High Dam, the catch of pelagic fishes specially sardines have been dropped from 48% of the total catch from the south-eastern part of the Mediterranean Sea to about 7%. At the present time, demersal fishes belonging to the families Mullidae, Soleidae, Synodontidae, Serranidae and Leogantidae constitute the main bulk of the catch. Among the above mentioned families, representatives of family Mullidae constitute about 24% of the total catch. It was also observed that maximum catches were obtained in summer and autumn. At small depths (10-50 meter) the main part of the catch is represented by fishes aged 1-5 years, therefore maximum catch is observed at small depth.

INTRODUCTION

The Mediterrranean Sea is considered as one of the most important fish resources in Egypt.

However, in the last few years, the Mediterranean Sea was under the influence of high increase in the number of fishing motorized vessels. This leads to remarkable intensive fishing and consequently affected the fish catch. The total catch during the period 1928-1932 ranged from about 38,000 to about 44,000 tons with an average of 38.715 tons, (Table 1).

Due to the intensive fishing during the period 1958-1962, the total catch increased and ranged from about 80.000 to 124.000 tons with an average of 93.906 tons (El-Zarka and Koura 1965).

In more recent years, and since the construction of the Aswan High Dam in 1965, the amount of Nile River discharge sharply decreased from 44,01 Km^3 in 1962 to 4.20 Km^3 in 1970. This decrease in the fresh water dischrage greatly affected the hydrographic conditions of the Mediterranean waters

over the Egyptian continental shelf (Gerges, 1976). These environmental changes have lead to considerable decrease in the population of pelagic fishes especially sardines in the area to the extent that the role of genus **Sardinella** in the Mediterrean fisheries had been restricted to about 7% of the total catch compared to about 48% before the regulation of the Nile discharge (El-Maghraby 1960; Rifaat 1960; ElZarka and Koura, 1965) (Table 2).

At present, demersal fishes belonging to the families Mullidae, Soleidae, Synodontidae, Serranidae and Leognathidae constitute the significant catch in the Mediterranean Sea fisheries.

From the above mentioned families, this study will be concerned with family Mullidae, which is considered as one of the most essential economic fishes along the south-eastren part of the Mediterranean Sea. This family is mainly represented by **Mullus barbatus** L. However, in the catch, other species are met with like **Mullus surmuletis, Upeneus tragula** and **Upeneus molleccinces** (Hashem 1972).

TABLE 1
Catch in Egypt in 1928-1932 and 1958-1962 years.

Year	Noumber of fish vessels in the Medit. Sea	Total catch (tons)	Catch in the Mediterranean Sea only	
			Tons	% of total catch
1928	None	41.998	5,600	13.33
1929	None	32.172	6.626	20.60
1930	30	44.269	13.708	30.97
1931	35	37.956	10.152	26.75
1932	28	36.191	10.144	28.03
Average catch		38.517		
1958	428	80.400	35.147	43.72
1959	504	85.873	38.873	54.27
1960	559	88.300	51.464	58.28
1961	622	90.800	-	-
1962	574	124.159	37.832	30.47

Average catch for the period 1958-1962 equals 93.906 tons.

TABLE 2
Catch of economic fishes mainly Clupeidae in comparison with changes in the Nile discharge.

Year	Mediterranean total catch (tons)	Catch of Clupeidae		Nile stock (Km^3)
		Ton	%	
1962	37.832	18.166	48.02	44.01
1963	32.909	12.981	39.45	44.40
1964	25.975	7.372	28.38	63.72
1965	24.686	7.635	30.93	35.94
1966	15.044	1.233	8.20	13.24
1967	12.212	0.812	6.65	21.51
1968	13.588	0.463	3.41	5.87
1969	8.521	0.600	7.04	3.60
1970	8.100	0.580	7.16	4.20

MATERIAL AND METHODS

The present investigations are based on data obtained during the Egyptian-Soviet expeditions carried out by the research vessel "ICHTHYOLOG" in the south-eastern part of the Mediterranean Sea during two period 1965-1966 and 1970-1971 years.

The first expedition covered the area from the Arabs Bay in the west to El-Arish in the east, (Fig. 1).

The second expedition extended westward to cover the area to the west of Alexandria until El-Salloum.

Meantime, particular attention was given to the continental shelf water in front of the Nile Delta from Alexandria to Damietta, since it considered as the main fishing area in Egypt. Thus the area investigated was included between the two meridians 25° 20' and 31° 35' E, which was covered uniformly by a net work of trawling stations.

The choice of sites and routes of trawling was made taking into consideration the bottom topography which was explored by echo sounding. The trawling routes were chosen so that the trawling depths increased gradually.

During the autumn season, the trawling was done using two Polish trawls; 20-meter bottom and 27.1 motor trawl.

The 20-motor bottom trawl was equipped on the upper side with fifteen plastic units. The lower side of the trawl was equipped with a soft ground rope, consisting of these sections.

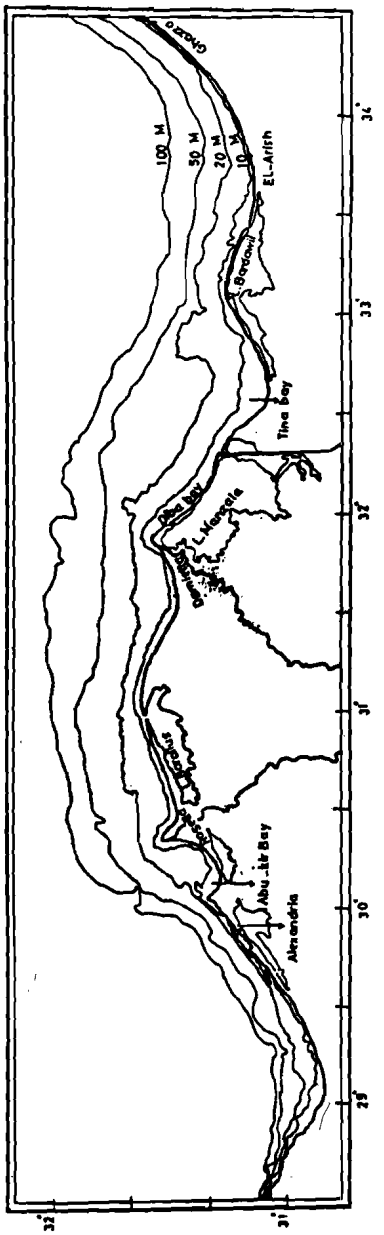

Fig. (1). Distribution of trawling regions along the south-eastern part of the Mediterranean.

Such gear was used during work at depths of 10 to 100 meters, while at depths more than 100 meter, 80 metal pieces were attached on the upper side instead of plastic ones. The vertical trawl opening was of the order of 4.4 meter.

The 27.1 meter Polish made trawl was equipped on its upper side by ten plastic pieces, the lower one being attached with small chains. The vertical opening of the trawl was of the order of 6 meter.

During winter, spring and summer seasons, trawling operations were carried out by a 20-meter small mesh bottom trawl.

The depth bigger than 100 meter, the upper trawl was equipped on the upper side with 80 metal pieces and the central section of the soft ground rope was replaced by a stiff ground rope, owing to the fact that the ground in this area was hard. The vertical opening at the trawl was of the order of 3.8 meter. The catch of each trawling was classified according to species. The mass of each species was first determined and then grouped according to size. Length measurement to the nearest centimeter and weighing to the nearest gram were then carried out for each group.

RESULTS AND DISCUSSION

According to the observed data obtained during the first expedition (1965-1966) in winter and spring seasons, the average catch of red mullet by regions was less than one kilogram per hour trawling, (Table 3). In the first half of the year (winter and spring seasons) the concentration of the fish was lower than in the second half of the year, (Table 3).

In the second half of the year 1966 (Summer and autumn seasons), the catch of red mullet constituted 19.8-31.8% of the total catch. In summer and autumn seasons, the average catch per hour trawling was 2.0 and 2.7 kilogram respectively, (Table 4).

In summer, the fish was spread over all the investigated area with high concentration in Brullos, Damietta and El-Arish regions, where average catch was 3.0 and 2.8 kilogram per hour trawling respectively, (Table 4).

In autumn, the distribution of red mullet was concentrated in Abu Kir, Rosetta and Al-Arish regions, where the average catch was 2.2 and 3.5 kilogram per hour trawling respectively, (Table 4).

Catch Less Than 0.1 Kilogram/hour Trawling

Catch of red mullet differed according to different depths. In winter season, the catch was higher at large depths (50-100 m) than at smaller ones (10-50 m).

TABLE 3
Catch of red mullet per hour trawling at depth 10-50 meter (average catch in kilogram).

Region of trawling	Winter 1965		Spring 1966		Summer 1966		Autumn 1966	
	Av. fish catch	Av. catch of red mullet	Av. fish catch	Av. catch of red mullet	Av. fish catch	Av. catch of red mullet	Av. fish catch	Av. catch of red mullet
Abu-Kir/Rosetta	10.6	0.08	3.1	0.03	7.7	1.3	8.3	1.7
Brullos/Damietta	2.8	0.1	1.0	0.02	8.2	3.0	6.8	2.5
Diba/Tina	8.8	0.5	4.6	0.02	7.0	1.9	8.4	2.8
El-Arish	11.0	0.9	3.9	0.02	6.6	2.8	6.4	2.6
Arabs Bay	-	-	-	-	16.8	-	-	-
Average catch in season	9.3		3.0		8.5		7.6	

TABLE 4
Average catch of red mullet in different seasons (Kilogram/hour trawling)

Region of Trawling	Average catch of all fish				Average catch of red mullet			
	Winter 1965	Spring 1966	Summer 1966	Autumn 1966	Winter 1965	Spring 1966	Summer 1966	Autumn 1966
Arabs Bay	-	-	16.8	-	-	-	0.2	-
Abu-Kir/Rosetta	9.1	3.1	7.7	7.8	0.1	+	1.3	2.2
Brullos/Damietta	13.6	1.0	8.2	5.2	1.5	+	3.0	1.4
Diba/Tina	6.3	4.3	7.0	3.6	1.9	+	1.9	1.7
El-Arish	-	3.9	6.7	6.0	-	+	2.8	3.5
Average catch for 11 regions	10.2	3.0	8.5	6.6	1.1	+	2.0	2.7

In Brullos-Damietta and Diba-Tina regions, the average catch at large depths was 1.5 and 1.9 Kg/hour trawling respectively, while at smaller depths the catch was estimated by 0.1 and 0.5 Kg/hour trawling.

In all region the average catch of red mullet at large and small depths was represented by 1.1 and 0.4 Kg/hour trawling respectively.

In summer-autumn seasons, average catch at small depths was found to be considerably higher than that at large depths.

As a result of catch analysis of red mullet in summer and autumn seasons, we could say that the population of this fish was nearly the same for both seasons.

In Damietta region, catch of red mullet was represented by 11.0% of total catch, (Table 5).

In Diba-Tina region, family Mullidae constituted 30.2% of total fish catch, (Table 5).

The results obtained during the second expedition (1970-1971) revealed the following facts:

In summer season, the catch at small depths (10-50 m) was estimated by 1.6 Kg/hour trawling (Tables 6,7), compared with 2.2 Kg/hour trawling for summer 1966.

In autumn 1970 and winter 1971, maximum catch in Rosetta region was 10.4 and 0.7 Kg/hour trawling, respectively. However, it has been noticed that the winter catch of red mullet in this region somewhat increased at depths over 50 meter.

In spring season, minimum catches (average catch 0.1 Kg/hr. trawling) was found at small depths (10-50 meter).

In Abu-Kir region, average catch did not exceed 0.1 Kg/hr. trawling. However, at depths more than 50 meters, the catch amounted to 1.2 Kg/hr. trawling. This high increase in catch at depths larger than 50 meter is explained by migration of red mullet at winter to large depths, (Table 8).

In autumn, the catch decreased to 1.4 Kg/hr. trawling in comparison with the 1966 catch in the same season which amounted to 2.0 Kg/hr. trawling.

At depths 10-50 meter, red mullet was found in all regions with an average of 13.1 % of the total catch, (Table 9).

At depths 50-100 meter, average catch was 12.6 Kg/hr. trawling. In Rosetta region, the catch of red mullet was dominant and constituted 75.0 % of total fish catch.

TABLE 5
Catch of different fish families per hour trawling at depths from 20 to 100 meter (winter 1965).

Region		Fish Families										
		Clupeidae	Mullidae	Sparidae	Engraulidae	Synodontidae	Carangidae	Merluccidae	Serranidae	Selachii	Other fish	Average catch of all fish
Abu Kir/Rosetta	Kg.	0.8	0.1	0.9	0.1	0.1	0.1	0.03	2.0	3.4	1.6	8.9
	%	8.2	0.9	10.4	0.9	0.8	1.0	0.3	22.4	37.5	16.7	100
Damietta	Kg.	0.6	1.5	4.0	0.1	0.1	0.2	0.2	2.8	3.3	2.8	13.5
	%	4.3	11.0	14.1	0.5	0.6	1.2	1.6	21.0	24.4	21.0	100
Diba/Tina	Kg.	0.3	1.9	1.2	0.6	0.3	0.03	0.06	1.6	0.6	-	6.3
	%	4.1	30.2	18.6	9.8	5.0	0.5	0.9	26.3	4.6	-	100
Average catch of all fish	Kg.	0.5	1.2	1.4	0.3	0.2	0.1	0.1	2.1	2.3	1.4	9.6
	%	5.7	12.5	14.6	3.1	2.1	1.0	1.0	21.8	24.0	14.6	100

TABLE 6
Average catch and specific composition/hour trawling at different depths (Summer 1971).

depth (m)	Region	Average catch (kg)	Including													
			Clupeidae	Engraulidae	Carangidae	Mullidae	Sparidae	Serranidae	Synodontidae	Pomatominae	Sphyraenidae	Leognathidae	Soleidae	Triglidae	Elasmobranchii	Other fish
10 - 50	Damietta	4.0	0.1	+	0.2	1.1	0.2	0.1	0.4	+	0.2	0.9	0.4	0.2	0.1	0.1
	Brullos	6.5	0.2	+	0.1	1.8	0.3	1.0	0.4	0.1	0.1	1.5	0.2	0.1	0.3	0.4
	Rosetta	9.2	0.2	0.1	0.3	1.8	0.6	0.2	0.9	0.5	0.6	1.8	0.5	0.2	0.3	1.2
	Abu Kir	7.2	0.2	0.1	0.2	1.4	1.0	0.5	0.4	0.1	+	1.8	0.4	+	0.7	0.4
	Average	0.3	0.2	+	0.2	1.6	0.4	0.5	0.5	0.1	0.2	1.4	0.3	0.1	0.3	0.5
50 - 100	Damietta	1.2	0.1	-	-	0.1	0.1	-	0.4	-	0.1	-	-	0.2	0.1	0.1
	Rosetta	7.5	-	-	-	1.0	1.1	0.7	2.8	-	-	-	0.1	0.3	0.3	1.5
	Abu Kir	5.1	0.1	-	0.2	+	+	+	1.8	-	-	-	1.6	0.4	0.2	0.7
	Average	4.8	0.1	-	0.1	0.3	0.3	0.2	1.7	-	+	-	0.9	0.3	0.1	0.8
100 - 200	Rosetta	0.2	-	-	-	-	0.2	-	-	-	-	-	-	+	-	-
	Abu Kir	1.4	0.2	-	0.4	0.4	0.2	-	-	-	-	-	+	0.1	-	-
	Average	1.0	0.1	-	0.3	0.3	0.2	-	-	-	-	-	+	0.1	-	-
200/300	Abu Kir	No Catch														

\+ catch less than 0.1 Kg/ Hour trawling.

TABLE 7
Catch and species composition at different depths (Summer 1971).

depth (m)	Region		Total catch	Clupeidae	Engraulidae	Carangidae	Mullidae	Sparidae	Serranidae	Synodontidae	Pomatomidae	Sphyraenidae	Leognathidae	Soleidae	Triglidae	Stomobranchii	Other fish
10-50	Brulles	Kg.	55.8	1.81	0.37	2.37	15.89	2.08	1.59	8.07	0.37	1.76	12.62	5.73	2.44	0.98	1.71
		%	100	3.2	0.7	4.2	28.5	3.7	2.9	1.07	0.7	3.2	22.6	10.3	4.4	1.8	3.1
	Rosetta	Kg.	9.15	2.97	0.4	1.68	25.91	4.47	13.44	5.05	0.76	1.64	20.78	2.42	1.32	3.45	8.85
		%	100	3.3	0.4	1.9	28.7	5.0	13.9	5.6	0.8	1.8	23.1	2.7	1.5	3.8	6.5
	Abu Kir	Kg.	73.32	1.16	0.56	2.81	14.39	5.02	1.76	7.07	3.89	4.53	14.15	3.73	1.60	2.95	9.89
		%	100	1.6	0.8	3.8	19.5	6.9	2.4	9.7	5.3	6.2	19.3	5.1	2.2	4.0	13.2
	Damfetta	Kg.	57.79	1.64	0.72	1.52	11.24	8.32	4.15	3.67	0.88	0.16	14.15	2.29	0.43	5.54	3.07
		%	100	2.8	1.2	2.6	19.4	14.4	7.2	6.3	1.5	0.3	24.5	4.2	0.7	9.6	5.2
	Total	Kg.	277.1	7.6	2.0	8.4	67.4	19.9	21.0	21.9	5.9	8.1	61.7	14.2	5.8	12.9	20.3
		%	100	2.7	0.7	3.2	24.3	7.2	7.6	7.9	2.1	2.9	22.1	5.1	2.1	4.7	7.4
50-100	Damfetta	Kg.	1.21	0.07	-	-	0.13	0.14	-	0.45	-	0.04	-	-	0.24	0.08	0.08
		%	100	6.2	-	-	10.3	11.6	-	37.2	-	2.9	-	-	20.2	6.6	5.0
	Rosetta	Kg.	7.49	-	-	-	1.04	1.12	0.73	2.76	-	-	-	0.07	0.26	-	1.51
		%	100	-	-	-	13.6	14.8	9.6	37.0	-	-	-	0.9	3.5	-	20.2
	Abu Kir	Kg.	10.27	0.21	-	0.37	0.02	0.04	0.1	3.61	-	-	-	3.29	0.72	0.49	1.42
		%	100	2.1	-	3.6	0.2	0.3	1.0	35.1	-	-	-	32.1	7.2	4.7	13.7
	Total	Kg.	19.0	0.3	-	0.4	1.2	1.3	0.8	6.8	-	-	-	3.4	1.2	0.6	3.0
		%	100	1.6	-	2.1	6.3	6.9	4.2	35.8	-	-	-	18.0	6.3	3.2	15.6
100-200	Rosetta	Kg.	0.23	-	-	-	-	0.22	-	-	-	-	-	0.01	0.01	-	-
		%	100	-	-	-	-	98.0	-	-	-	-	-	0.04	2.00	-	-
	Abu Kir	Kg.	2.76	0.47	-	0.84	0.77	0.3	-	-	-	-	-	0.06	0.26	-	0.06
		%	100	17.2	-	30.2	28.0	10.3	-	-	-	-	-	2.2	9.4	-	2.2
	Total	Kg.	2.99	0.5	-	0.8	0.8	0.5	-	-	-	-	-	0.1	0.3	-	0.1
		%	100	15.8	-	28.0	25.8	17.5	-	-	-	-	-	2.0	8.9	-	2.0

In Abu-Kir region, catch of red mullet constituted 28.0 % of total catch at depth 100-200 meter. At depth 10-50 meter, average catch was represented by 24.3 % of total fish catch, (Tables 6 and 7), while at depths 50-100 meter, the average catch decreased to 6.3 % of total catch.

In 1970-1971, red mullet was represented by 13.7 % of total catch at depth 10-50 m., while at large depths (50-100 meter), catch of this fish constituted in average 14.8 % of the total catch, (Tables 10 and 11).

From the above results, we can say that the population of red mullet is more or less dependent on the population of pelagic fishes specially sardine, which is highly affected by changes in feeding and oceanographic conditions of the Egyptian continental shelf waters (Pavlovskay and Boudinshaton 1970).

Comparing the results obtained from the trawling survey carried out in the southeastern part of the Mediterranean Sea in 1965-1966 and 1970-1971 years; one could conclude generally that the population of the red mullet has somewhat decreased in 1970-1971.

TABLE 8
Catch and species composition of fishes at different depths (spring 1971).

depth (m)	Regions		Total fish catch Kg	Clupei-dae	Caran-gidae	Mull-idae	Spar-idae	Serran-idae	Synodo-ntidae	Engraul-lidae	Pomatom-idae	Leognath-idae	Soleidae	Trigl-idae	Elasmo-branch-ii	Other fish
10 - 50	Damietta	Kg.	26.10	0.78	0.24	1.44	00.76	00.34	02.79	0.47	0.45	5.83	05.27	04.64	0.81	02.39
		%	100	3.0	0.9	5.5	02.9	01.3	10.7	01.8	1.7	22.3	20.2	17.8	03.1	04.2
	Brullos	Kg.	34.45	0.18	0.46	0.76	03.71	07.16	05.06	0.13	0.60	0.76	04.75	03.09	6.04	02.29
		%	100	0.5	1.3	2.2	10.8	20.8	14.7	00.4	1.7	02.2	13.8	09.0	17.5	06.6
	Rosetta	Kg.	24.71	0.13	0.63	0.32	06.17	03.16	03.16	0.12	2.40	0.31	01.34	01.73	1.79	03.45
		%	100	0.5	2.6	1.3	25.0	12.8	12.8	00.5	0.7	01.2	05.4	07.0	07.3	13.9
	Abu Kir	Kg.	13.89	0.82	-	0.27	01.45	00.02	02.28	1.38	1.10	0.79	01.81	01.40	0.50	01.89
		%	100	5.9	-	1.8	10.5	00.2	01.8	10.0	8.0	07.0	20.3	17.3	03.6	13.7
	Total	Kg.	100.80	1.91	1.33	3.97	12.90	10.68	11.29	2.1	4.55	7.87	14.17	11.86	9.14	10.02
		%	100	1.9	1.3	3.8	12.1	10.7	11.3	2.1	4.6	07.9	14.2	11.9	9.2	10.0
50 - 100	Damietta	Kg.	08.28	0.07	0.43	0.08	01.16	00.11	06.68	-	-	0.13	00.34	00.75	0.66	03.87
		%	100	0.8	5.2	1.0	14.0	01.3	08.2	-	-	01.6	04.1	09.1	08.0	04.4
	Rosetta	Kg.	02.74	-	-	0.15	00.02	00.37	00.03	-	-	-	-	-	1.78	00.12
		%	100	-	-	5.5	00.7	13.5	10.9	-	-	-	-	-	65.0	04.0
	Abu Kir	Kg.	07.35	-	-	1.16	00.48	00.04	00.84	-	-	-	02.77	00.35	-	1.71
		%	100	-	-	15.8	06.5	00.5	11.4	-	-	-	37.8	04.7	-	23.3
	Total	Kg.	18.37	0.07	0.43	1.39	01.66	00.52	01.82	-	-	0.13	03.11	01.10	2.44	05.70
		%	100	0.4	2.3	7.6	09.0	02.8	09.9	-	-	00.7	17.0	06.0	13.3	31.0
	Rosetta	Kg.	00.16	-	-	-	0.03	-	-	-	-	0.01	-	00.12	-	-
		%	100	-	-	-	18.3	-	-	-	-	06.3	-	75.0	-	-

TABLE 9
Catch of different fish families at different depths (Autumn 1970).

Depth (m)	Region		Total Fish catch	Clupeidae	Carangidae	Mullidae	Sparidae	Serranidae	Elasmobranchii	Synodontidae	Sphyraenidae	Leognathidae	Gadidae	Other Fish
10 - 50	Damietta	Kg.	148.13	11.95	8.41	27.57	6.97		6.77	1.72	13.96	66.89	-	10.87
		%	100	8.1	5.7	18.6	4.0		0.5	1.2	9.4	45.2	-	7.3
	Brullos	Kg.	64.90	0.42	3.56	7.18	7.86	1.60	1.50	12.44	2.28	22.03	-	6.01
		%	100	0.6	5.5	11.2	12.1	2.5	2.3	19.1	3.5	33.9	-	9.3
	Abu Kir	Kg.	89.75	3.29	2.98	9.13	2.53	1.20	8.00	13.70	5.66	40.17	-	3.08
		%	100	3.7	3.3	10.2	2.8	1.3	8.9	15.3	6.3	44.8	-	3.4
	Rosetta	Kg.	83.40	0.49	0.96	6.96	3.56	8.82	2.99	25.53	5.81	14.54	-	14.55
		%	100	0.6	1.2	8.3	4.4	9.6	3.6	30.7	6.9	17.3	-	17.4
	Total	Kg.	386.18	16.15	15.91	50.84	20.92	11.62	13.26	53.39	27.71	143.63	-	34.51
		%	100	4.2	4.1	13.1	5.1	2.8	3.4	13.8	7.2	37.4	-	8.9
50 - 100	Abu Kir	Kg.	19.01	0.04	0.22	0.89	0.96	11.08	0.14	1.14	0.15	1.71	0.23	2.46
		%	100	0.2	1.2	4.7	5.0	58.3	0.7	6.0	0.8	9.0	1.2	12.9
	Rosetta	Kg.	16.81	0.2	0.10	12.60	0.94	-	1.26	-	-	-	0.41	1.48
		%	100	0.1	0.6	75.0	5.6	-	7.5	-	-	-	2.4	8.8
	Total	Kg.	35.82	0.06	0.32	13.49	1.90	11.08	1.40	1.14	0.15	1.71	0.64	3.94
		%	100	0.2	0.9	37.7	5.3	30.9	3.9	3.2	0.4	4.8	1.8	11.0
100/200	Abu Kir	Kg.	11.33	-	0.01	-	5.27	3.54	-	-	-	-	3.85	0.86
		%	100	-	0.1	-	24.8	30.7	-	-	-	-	33.3	7.5
200/400	Abu Kir							No Catch						

TABLE 10
Catch composition at different depths (Winter 1971).

Depth (m)	Region		Total catch of fish (kg.)	Elasmobranchii	Clupeidae	Carangidae	Mullidae	Sparidae	Serranidae	Synodontidae	Sphyraenidae	Pomatomidae	Leognathidae	Soleidae	Other Fish
5 - 10	Damietta	Kg.	72.26	-	3.31	1.26	8.61	1.33	15.93	18.04	3.61	-	11.84	4.36	3.97
		%	100	-	4.6	1.7	11.9	1.8	22.1	25.0	5.0	-	16.4	6.0	5.5
	Brullos	Kg.	70.97	1.87	0.13	1.03	13.67	0.91	11.44	24.11	0.08	0.9	3.19	5.46	7.28
		%	100	2.6	0.2	1.4	19.3	1.3	16.1	35.2	0.1	1.3	4.5	7.7	10.3
	Rosetta	Kg.	37.22	14.61	0.46	0.33	3.80	0.90	0.74	4.46	0.06	0.38	3.88	1.31	6.07
		%	100	39.9	1.3	0.9	10.2	2.4	2.0	12.0	0.1	1.0	10.4	3.5	16.3
	Abu Kir	Kg.	19.83	0.86	1.92	0.54	1.37	0.12	0.04	0.97	0.4	1.77	7.12	1.23	3.85
		%	100	4.3	9.7	2.7	6.9	0.6	0.2	4.9	0.2	9.0	35.9	6.2	19.4
	Total	Kg.	200.28	17.54	5.84	3.16	27.45	3.16	28.15	48.46	3.79	3.05	26.03	12.36	21.17
		%	100	8.8	2.9	1.6	13.7	1.6	14.1	24.1	1.9	1.5	13.0	6.2	10.6
10 - 50	Damietta	Kg.	0.25	-	-	-	0.25	-	-	-	-	-	-	-	-
		%	100	-	-	-	100	-	-	-	-	-	-	-	-
	Rosetta	Kg.	9.22	0.39	-	0.04	1.52	2.19	0.78	0.85	-	-	-	0.29	3.16
		%	100	4.2	-	0.5	16.5	23.8	8.2	9.2	-	-	-	3.1	34.5
	Abu Kir	Kg.	3.30	-	0.07	-	0.12	0.20	0.03	0.35	-	-	0.01	0.39	2.13
		%	100	-	2.1	-	3.6	6.1	0.9	10.6	-	-	0.3	11.8	64.6
	Total	Kg.	12.77	0.39	0.07	0.04	1.89	2.39	0.79	1.20	-	-	0.01	0.68	5.31
		%	100	3.1	0.5	0.3	14.8	18.7	6.2	9.4	-	-	0.1	5.3	41.6
50 - 100	Rosetta	Kg.	2.09	0.96	-	-	0.09	0.37	0.16	-	-	-	-	-	24.6
		%	100	46.8	-	-	4.3	17.7	7.7	-	-	-	-	-	-
	Abu Kir	Kg.					No Catch								
		%													
	Total	Kg.	2.09	0.96	-	-	0.09	0.37	0.16	-	-	-	-	-	0.51
		%	100	46.8	-	-	4.3	17.7	7.7	-	-	-	-	-	24.6
200/300	Abu Kir		No Catch												

Other fish include: Trigla sp., Sous faber, Argentina Sphyraena, Uranoscopus scaber; Scorpaena porcus; Trachinus draco; Bothus podas; Epcoetus voltzane; Uranous trigula; Merluccius merluccius.

CONCLUSION

Before the control of the Nile discharge, pelagic fishes especially Sardines constituted the main bulk of marine fisheries (average 48 % of total catch of the Mediterranean Sea). After the construction of the Aswan High Dam, catches of family Clupeidae (mainly Sardines) amounted to quite a negligible part (about 7 % of the total catch).

At preseconsitnt, demersal fishes belonging to the families Mullidae, Soleidae, Synodontidae and Serranidae constitute the main catch from the Mediterranean Sea.

The red mullet (family Mullidae) constitutes nowadays about 24.3 % of the catch of the Mediterranean Sea.

According to the 1965-1966 survey in the southeastern part of the

TABLE 11

Average catch and species composition/hour trawling at different depths (Winter 1971).

Depth (m)	Region	Average catch (Kg)	Clupeidae	Carangidae	Mullidae	Sparidae	Serranidae	Synodontidae	Sphytanidae	Pomatomidae	Leognathidae	Soleidae	Elasombranchii	Other Fish
10 - 50	Damietta	5.6	0.3	0.1	0.7	0.1	1.1	1.4	0.3	-	0.9	0.4	-	0.3
	Brullos	4.7	+	0.1	0.9	+	0.8	1.7	+	+	0.2	0.4	0.1	0.5
	Rosetta	5.3	0.1	+	0.6	0.1	0.1	0.6	0.6	+	0.6	0.2	2.1	0.9
	Abu Kir	4.0	0.4	0.1	0.3	+	+	0.2	+	0.4	1.4	0.2	0.2	0.8
	Average	5.0	0.1	0.1	0.7	0.1	0.7	1.2	0.1	-	0.8	0.3	0.4	0.5
50 - 100	Damietta	0.1	-	-	0.1	-	-	-	-	-	-	-	-	-
	Rosetta	4.6	-	+	0.8	1.1	0.4	0.4	-	-	-	0.1	0.2	1.6
	Abu Kir	1.7	+	-	0.1	0.1	+	0.2	-	-	+	0.2	-	1.1
	Average	2.1	+	+	0.3	0.4	0.1	0.2	-	-	+	0.1	0.1	0.9
100 - 200	Rosetta	2.1	-	-	0.1	0.4	0.1	-	-	-	-	-	1.0	0.5
	Abu Kir	-	-	-	-	-	-	-	-	-	-	-	-	-
	Average	1.0	-	-	+	0.2	+	-	-	-	-	-	0.5	0.3
200/300	Abu Kir	-	-	-	-	-	-	-	-	-	-	-	-	-

\+ Catch less than 0.1 Kilogram/hour trawling.

TABLE 11

Average catch and species composition/hour trawling at different depths (Winter 1971).

Depth (m)	Region	Average catch (Kg)	Clupeidae	Carangidae	Mullidae	Sparidae	Serranidae	Synodontidae	Sphytanidae	Pomatomidae	Leognathidae	Soleidae	Elasombranchii	Other Fish
50 - 10	Damietta	5.6	0.3	0.1	0.7	0.1	1.1	1.4	0.3	-	0.9	0.4	-	0.3
	Brullos	4.7	+	0.1	0.9	+	0.8	1.7	+	+	0.2	0.4	0.1	0.5
	Rosetta	5.3	0.1	+	0.6	0.1	0.1	0.6	0.6	+	0.6	0.2	2.1	0.9
	Abu Kir	4.0	0.4	0.1	0.3	+	+	0.2	+	0.4	1.4	0.2	0.2	0.8
	Average	5.0	0.1	0.1	0.7	0.1	0.7	1.2	0.1	-	0.8	0.3	0.4	0.5
100 - 50	Damietta	0.1	-	-	0.1	-	-	-	-	-	-	-	-	-
	Rosetta	4.6	-	+	0.8	1.1	0.4	0.4	-	-	-	0.1	0.2	1.6
	Abu Kir	1.7	+	-	0.1	0.1	+	0.2	-	-	+	0.2	-	1.1
	Average	2.1	+	+	0.3	0.4	0.1	0.2	-	-	+	0.1	0.1	0.9
200 - 100	Rosetta	2.1	-	-	0.1	0.4	0.1	-	-	-	-	-	1.0	0.5
	Abu Kir	-	-	-	-	-	-	-	-	-	-	-	-	-
	Average	1.0	-	-	+	0.2	+	-	-	-	-	-	0.5	0.3
300/200	Abu Kir	-	-	-	-	-	-	-	-	-	-	-	-	-

\+ Catch less than 0.1 Kilogram/hour trawling.

Mediterranean Sea, catch of red mullet constituted from 19.8 to 32.8 % of the fish catch from the Mediterranean Sea.

High catches were observed in summer and autumn seasons during the surveys carried out in 1965 and 1970 years, however, the role of fingerlings increased in catch in the above seasons.

Fishes at age 1 - 5 years constituted the main part of catch at depths 1050 meter, therefore, catches of red mullet reach maximum at small depths and minimum at larger depths (50-100 meter).

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