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ON THE FOOD AND FEEDING HABITS OF MUGIL CAPITO (CUV.) IN LAKE QUARUN.

S.S. EL-SERAFY; A.S. AL-ZAHABY; AND M.A. SWEILUM.

Department of Zoology, University of Zagazig.
* Institute of Oceanography and Fisheries.

ABSTRACT

Food and feeding habits were studied at three different localities in Lake Quarun. It was found that the feeding rate of **M. capito** is food availability dependence related to the favourable ecological conditions. The nature of the bottom's Lake has a role in the feeding habit of the fish.

Small size of **M. capito** tends to feed exclusively on plant organisms, mainly chrysophyta, chlorophyta and cyanophyta. As the Fish grows up to certain size the diet becomes mixed of phytoplankton, zooplankton and detrital materials. The fish of largest size feed on animal organisms (Copepoda, Flagellata and Foraminifera), detritus and sand grains.

Analysis of stomach content was also examined seasonaly from summer 1985 to Spring 1986. Feeding rate is lowest during autumn and winter due to the gonadal maturation and the drop of water temperature in this period.

INTRODUCTION

Mugil capito (CUV.) is a member of the family Muglidae and is commonly called grey mullet. Due to its potentiality as a cultivable species in the tropics, it has become an edible fish in Lake Quarun.

Studies of food and feeding of the Egyptian mullet (**M. capito and M. cephalus**) collected from natural habitat were mentioned as early as 1933 (El-Chazzawi, 1933). Bishara (1967) studied the food and feeding habits of two species of Mugilidae at the Mex experimental ponds. Hamza (1974) studied the food and feeding habits of three species of Muglidae reared in Manzalah fish farm. However, the study on the food and feeding habits of Mugil species at different localities of the world was reproted by different workers (Pillay, 1953; Luther, 1962; Yushouv and Benachar, 1970; De Silva and Wijeyaratne, 1977; Abdel Malek, 1980; Marias, 1980 Minckley, 1982; Matlock and Garcia, 1983; Spataru et al., 1983; Drake et al., 1984 and Wells, 1984).

The stocks of grey mullet in lake Quarun are annualy recruited from fry transported to the lake from eustries of the Mediterranean Sea, these fry find a good feeding ground to grow in Lake Qarun. The mullet catch of Lake Quarun is mostly composed of M. capito where its annual catch is 296. tons, which compries about 25% of the total catch in the year 1985/1986. Thus for the great economic importance of this fish, the present investigation is carried out. This study deals with the seasonal variations of the food items at different stations for different size groups. Such study may help in planing and management the fisheries of M. capito in Lake Quarun.

MATERIAL AND METHODS

The material of the present study comprises a total number of 722 Mugil capito of June 1985 to May. 1986 from three different stations: Sation 1 (Infront of El- Bats Drain) occupies most of the eastern part of the Lake, the second station (Khor Maiuf) is nearly situated in the middle of the Lake and the third station (El-Rawashdia) lies in Western part of the Lake. Fig. 1.

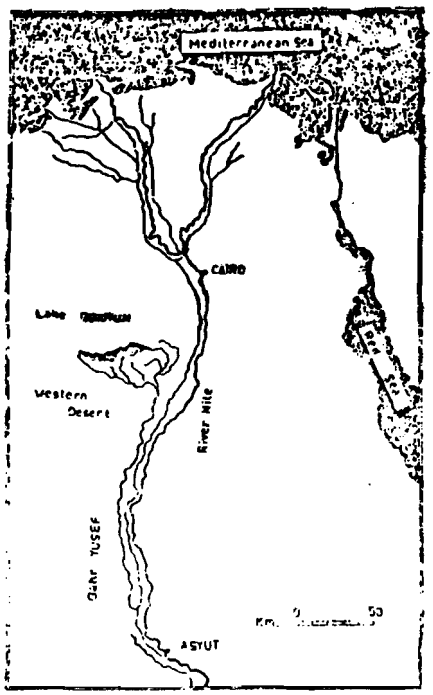

FIG. 1
Location of Lake Qarun.

The fishes were caught monthly from each station the Lake using the mullet nets. Each fish was sexed and measured to the nearest mm in total length, then its weight was recorded to the nearest gm. The gut was removed and preserved in 5% formalin in a labeled jars for later examination.

The contents of the alimentary canals were examined in the laboratory using a research microscope. The different food items constituting the plant and animal materials were identified and counted by Sedwick Rafter counting cell (for counting phytoplankton) and Tray counting cell (for counting Zooplanton).

The data obtained were analysed numericaly by the percentage composition by number (Bishai et al., 1978; Ezzat and ElSerafy, 1977; Windell and Bowen, 1978; Spataru et al., 1980 and 1983).

Sampling was done at monthly intervals in the mid day of fortnight. Data for every season were groupped together.

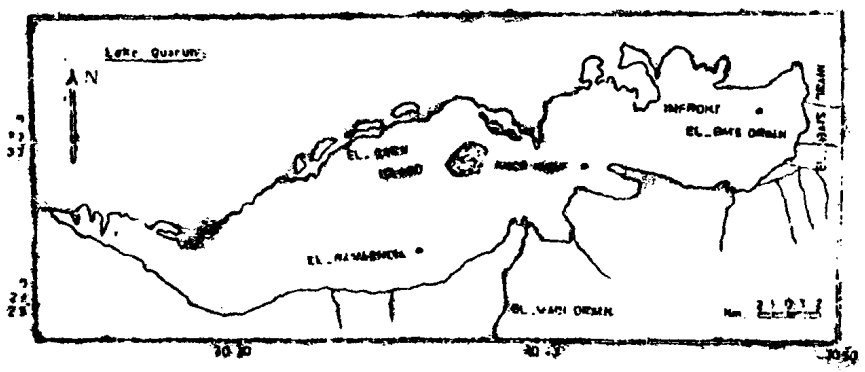

Fig. 2
Map of Lake Qarun showing the location of sampling stations.

RESULTS AND DISCUSSION

The obtained data for the present study are represented for seven groups of fishes. These are; group 1 ranged from 96-135 mm, group 2: 136-175 mm, group 3: 176-215 mm, group 4: 216-255 mm, group 5: 256-295 mm, group 6: 296-335 mm and group 7: 336-375 mm.

The present observations confirm that **Mugil capito** is omnivorous, eating both animal and plant materials. The animal organisms recorded in the alimentary canals of **M. capito** were; Copepoda (**Acartia** sp. and nauplius larvae of **Acartia** sp.) Flagellata (**Prorocentrum** sp.) Foraminifera (**Globigerina**

sp.) and animal detritus. The plant organisms including Chrysophyta (*Navicula sp., Gyrosigma* sp., **Mastoglia** sp., **Nitzschia** sp., **Coscinodiscus** sp., **Synedra** sp., **Thalassionema** sp. and **Amphora** sp.) Chlorophyta (**Enteromorpha** sp. and **Ankisterodesmus** sp.), Cyanophyta (**Oscillatoria** sp., **Spirulina** sp. and Lyngbya sp.) and plant detritus. In addition to the animal and plant materials the sand grains are also found in the guts of large sized fish.

The percentage composition of food items is calculated and shown in Tables 1-4.

The results are based on the examination of about 180 gut contents in each season, it has been found that the percentage of empty alimentary canals are 8.8% in summer, 32.2% in autumn, 38.9% in winter and about 2.2% in spring.

On the other hand the percentage of empty guts was 19.9% in the first station, 10.8% in the second station and 32.0% in the third one respectively, from the number of fish examined which was about 240 fish in each station, during the investigation period. This means that the stomach fullness in station III is lower than that in stations I and II.

From the present data, it is clearly seen that the small size of **Mugil capito** (group 1 and 2) tends to be exclusively of plant organisms, feed mainly on Chrysophyta, Chlorophyta and Cyanophyta which composed an average of 40.8%, 26.9% and 7.6% respectively of the total food eaten. De Silva and Wijeyaratne (1977) analysed the stomach content of the young grey mullet collected from coastal lagoon in Srilanka and noticed that they feed mainly on chrysophyta, chlorophyta and cyanophyta. The same author added that the chrysophyta represents more than half of the fish diet. Abdel-Malek (1980) proved that the grey mullet, **M. Saliens** in Lake Quarn fed mainly on algae. Oren (1981) postulated that the fry of grey mullet (**M. cephalus**) in estuaries feed on algae and plant detritus. Minckley (1982) analysed the stomach content of 18 spp. Of fishes in the lower Colorado River southwestern USA and indicated that small size fishes of **M. Cephalus** feed on algae, detrital materials and macrophytes, while large fishes feed directly on detritus. Matloc and Garcia (1983) analysed the stomach content of selected fishes from Texas USA bays and noticed that the stomachs of **M. Cephalus** contained plant materials only. The diet of the grey mullet in Lake Waahi and the Waikato River, "two highly productive freshwater habitats at Huntly New Zealand" is found to include a wider range of algal species, some macrophyte detritus and inorganic particles (Wells, 1984).

However, other workers belived that the animal organisms are more impor[illegible] food items in small size fish of mullets. Luther (1962) observed that the fry of **M. cephalus** feed mainly on zooplankton. There is an indication that the postlarval **M. cephalus** in the water of Japan and Haifa Bay of Israel feed mainly on the microcrustaceans of zooplankton Zusuki,1965 and Zisman et al., 1975). Kahan (1979) noticed that copepods were the

TABLE 1

Number in thousands and percentage composition of various food items in guts of Mugil capito at different length groups from three stations in Lake Quarun during summer 1985.

Station	No.	Length groups (mm)	No. of fish examined	No. of fish empty	Chrysophyta		Chlorophyta		Cyanophyta		Copepoda		Flagellata		Foraminifera		Detritus		Sand grains		Total
					No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No
station I (In front El-Bats) (Drain)	1-	9 6-13 5	10	-	47.3	53.8	27.3	31.0	12.2	14.0	1.1	1.2	-	-	-	-	-	-	-	-	88.0
	2-	13 6-17 5	11	-	66.6	51.0	39.2	30.0	17.0	13.0	4.3	3.3	2.2	1.7	1.3	1.0	-	-	-	-	130.6
	3-	17 6-21 5	7	1	113.3	47.0	68.4	28.4	27.0	11.2	18.6	7.7	5.3	2.2	3.6	1.5	4.8	2.0	-	-	241.0
	4-	21 6-25 5	11	1	94.3	32.8	72.5	25.2	26.6	8.9	25.9	9.0	15.8	5.5	11.5	4.0	20.1	7.0	21.9	7.6	287.5
	5-	25 6-29 5	9	2	92.3	26.5	50.5	14.5	19.9	5.7	49.5	14.2	24.4	7.0	23.0	6.6	39.0	11.2	49.8	14.3	348.4
	6-	29 6-33 5	5	1	67.5	14.0	33.7	7.0	14.0	2.9	84.8	17.6	43.4	9.0	33.7	7.0	98.8	20.0	106.0	22.5	482.0
	7-	33 6-37 5	7	-	57.7	10.0	14.4	2.5	-	--	116.5	20.2	57.7	10.0	50.7	8.8	124.0	21.5	158.6	27.0	576.7
			61	5																	
station II (Kher Maluf)	1-	9 6-13 5	9	-	75.6	54.0	43.8	31.3	19.6	14.0	0.7	0.5	0.3	0.2	-	-	-	-	-	-	140.0
	2-	13 6-17 5	11	-	81.8	51.8	47.4	30.0	20.4	13.0	4.7	3.0	1.9	1.2	1.6	1.0	-	-	-	-	157.8
	3-	17 6-21 5	8	-	151.9	49.0	89.9	29.0	36.3	11.7	12.1	3.9	8.1	2.6	5.0	1.6	5.6	1.8	1.2	0.4	310.1
	4-	21 6-25 5	9	1	141.5	33.7	110.5	26.3	40.7	9.7	29.4	7.0	18.9	4.5	10.5	2.5	33.6	8.0	34.9	8.3	420.0
	5-	25 6-29 5	11	-	134.4	28.0	72.0	15.0	31.2	6.5	57.6	12.0	38.4	8.0	33.6	7.0	60.0	12.5	52.8	11.0	480.0
	6-	29 6-33 5	6	2	96.3	16.6	49.9	8.6	23.2	4.0	82.4	14.2	53.4	9.2	48.7	8.4	110.2	19.0	116.0	20.0	280.1
	7-	33 6-37 5	6		73.6	11.5	22.4	3.5	9.6	1.5	118.4	18.5	63.9	10.0	57.6	9.0	134.4	21.0	100.0	25.0	639.8
			60	3																	
station III (El-Rewashda)	1-	9 6-13 5	9	-	37.6	51.0	22.5	30.5	9.6	13.0	3.1	4.2	1.0	1.3	-	-	-	-	-	-	73.8
	2-	13 6-17 5	11	2	53.2	45.8	31.3	26.9	13.6	11.3	7.6	6.5	2.7	2.3	3.5	3.0	4.9	4.2	-	-	116.8
	3-	17 6-21 5	9	-	80.3	36.5	50.9	23.0	17.7	8.0	19.5	8.8	12.2	5.6	6.2	4.8	17.3	7.8	12.2	5.5	216.3
	4-	21 6-25 5	10	2	59.4	22.0	43.2	16.0	13.5	5.0	30.2	11.2	19.4	7.2	16.7	6.2	42.4	15.7	45.1	16.7	269.9
	5-	25 6-29 5	9	1	41.6	13.0	22.4	7.0	11.2	3.5	54.3	17.0	28.7	9.0	24.0	7.5	67.1	21.0	70.3	22.0	319.6
	6-	29 6-33 5	7	2	43.1	9.8	7.5	1.7	-	-	88.6	20.0	39.9	9.0	39.9	9.0	95.2	21.5	128.4	29.0	442.6
	7-	33 6-37 5	6	1	42.3	8.5	-	-	-	-	107.1	21.5	49.8	10.0	47.3	9.5	107.1	21.5	144.5	29.0	498.1
			61	8																	

TABLE 2

Number in thousands and percentage composition of various food items in guts of Mugil capito at different length groups from three stations in Lake Quarun during autumn 1985.

Stations	No.	Length groups (mm)	No. of fish examined	No. of fish empty	Chrysophyta No	Chrysophyta %	Chlorophyta No	Chlorophyta %	Cyanophyta No	Cyanophyta %	Copepods No	Copepods %	Flagellata No	Flagellata %	Foraminifera No	Foraminifera %	Detritus No	Detritus %	Sand grains No	Sand grains %	Total No
station I (Ain front el-Bosh (Main)	1-	9 6 - 13 5	6	-	28.1	52.0	16.4	30.3	7.6	14.0	1.1	2.0	0.9	1.7	-	-	-	-	-	-	54.1
	2-	13 6 - 17 5	11	5	29.6	47.0	17.6	28.0	7.6	12.0	4.2	6.6	1.3	2.0	0.5	0.8	2.3	3.6	-	-	63.1
	3-	17 6 - 21 5	10	4	30.9	40.0	17.9	23.2	7.7	10.0	6.2	8.0	2.5	3.2	1.9	2.4	4.6	6.0	5.6	7.2	77.3
	4-	21 6 - 25 5	12	5	32.2	29.6	14.1	13.0	3.7	8.0	10.3	9.5	7.2	6.6	6.0	5.5	14.5	13.3	15.8	14.5	108.7
	5-	25 6 - 29 5	9	3	24.3	18.0	8.3	6.0	5.5	4.0	20.6	15.0	11.0	8.0	9.5	7.0	27.5	20.0	30.3	22.0	137.6
	6-	29 6 - 33 5	6	1	38.9	15.0	9.1	3.5	-	-	47.5	18.3	24.4	9.4	20.8	8.0	53.2	20.5	65.7	25.3	259.6
	7-	33 6 - 37 5	6	1	36.4	10.7	-	-	-	-	71.9	21.6	34.3	10.0	30.8	9.0	70.2	20.5	98.6	28.8	342.8
			60	19																	
station II (Abu Mandur (Main)	1-	9 6 - 13 5	6	-	39.9	52.0	23.6	30.7	10.8	14.0	1.2	1.5	0.8	1.0	0.6	0.8	-	-	-	-	76.8
	2-	13 6 - 17 5	11	2	49.0	49.0	29.4	29.4	12.0	12.0	2.2	2.2	1.2	1.2	1.8	1.8	2.4	2.4	2.0	2.0	99.4
	3-	17 6 - 21 5	9	1	48.4	41.0	28.3	24.0	12.3	10.4	9.2	7.8	3.5	3.0	4.2	3.6	6.1	5.2	5.9	5.0	118.0
	4-	21 6 - 25 5	11	3	46.5	31.0	21.0	14.0	12.8	8.5	13.5	9.0	8.3	5.5	6.8	4.5	22.5	15.0	18.8	12.5	145.0
	5-	25 6 - 29 5	11	2	49.4	19.0	23.4	9.0	15.1	5.8	31.2	12.0	21.3	8.2	18.2	7.0	49.4	19.0	52.0	20.0	261.5
	6-	29 6 - 33 5	6	1	62.4	16.2	18.5	4.8	-	-	61.6	16.0	38.5	10.0	34.7	9.0	80.9	21.0	86.6	23.0	385.0
	7-	33 6 - 37 5	6	-	46.6	10.0	14.0	3.0	-	-	98.7	21.0	46.6	10.0	42.3	9.0	98.7	21.0	122.2	26.0	465.8
			60	9																	
station III (El-Rawashdie)	1-	9 6 - 13 5	6	2	18.7	50.0	10.0	27.0	4.4	12.0	2.5	6.8	0.7	2.0	0.6	1.6	-	-	-	-	37.0
	2-	13 6 - 17 5	11	6	22.7	44.0	12.7	24.4	7.2	10.0	3.6	7.0	1.7	3.2	1.0	2.0	2.4	4.6	2.5	4.8	52.0
	3-	17 6 - 21 5	12	7	22.8	35.0	13.0	20.0	4.7	7.3	6.2	9.5	3.9	6.0	2.6	4.0	5.3	8.2	6.5	10.0	65.0
	4-	21 6 - 25 5	10	6	17.7	20.1	8.8	10.0	-	-	12.9	14.7	7.9	9.0	6.3	7.2	16.7	19.0	17.6	20.0	87.9
	5-	25 6 - 29 5	10	5	13.4	12.7	4.2	4.0	-	-	19.0	18.0	10.6	10.0	6.3	6.8	22.7	21.5	26.5	25.0	105.7
	6-	29 6 - 33 5	6	2	21.1	10.0	2.2	1.0	-	-	43.0	20.0	21.5	10.0	20.4	9.5	46.2	21.5	60.2	28.0	210.7
	7-	33 6 - 37 5	6	2	21.5	7.5	-	-	-	-	60.1	21.5	28.6	10.0	27.2	9.5	61.5	21.5	85.8	30.0	286.0
			60	30																	

TABLE 3

Number in thousands and percentage composition of various food items in guts of **Mugil capito** at different length groups from three stations in Lake Quarun during winter 1986.

Stations	No.	Length groups (mm)	No. of fish examined	No. of fish empty	Chrysophyta No	Chrysophyta %	Chlorophyta No	Chlorophyta %	Cyanophyta No	Cyanophyta %	Copepoda No	Copepoda %	Flagellata No	Flagellata %	Foraminifera No	Foraminifera %	Detritus No	Detritus %	Sand grains No	Sand grains %	Total No
Station I (In front El-Bats) (Drain)	1-	96 - 135	8	2	7.8	47.2	4.5	27.3	1.6	9.5	1.5	9.0	1.2	7.0	-	-	-	-	-	-	16.6
	2-	136 - 175	9	3	15.6	42.2	9.2	25.0	4.2	11.6	4.1	11.2	3.0	8.0	1.8	5.0	-	-	-	-	36.9
	3-	176 - 215	9	3	18.7	32.6	10.8	18.8	5.0	8.7	11.7	20.4	4.3	7.5	8.1	14.0	-	-	57.5		
	4-	216 - 255	10	5	16.3	22.0	9.0	12.2	6.7	9.1	12.2	16.5	6.2	8.4	11.1	15.0	11.9	16.0	74.2		
	5-	256 - 295	10	5	16.2	16.0	3.0	3.0	15.0	14.9	9.4	9.3	9.3	9.2	18.9	18.8	29.0	28.8	100.8		
	6-	296 - 335	8	4	9.3	6.6	-	-	28.1	20.0	16.7	11.9	14.7	10.5	29.5	21.0	42.1	30.0	137.7		
	7-	336 - 375	6	2	-	-	-	-	39.1	22.0	23.1	13.0	19.5	11.0	40.3	22.7	55.6	31.3	177.6		
			60	24																	
	1-	96 - 135	8	3	9.9	49.5	5.6	28.2			1.4	7.0	0.6	3.0	0.3	1.5	-	-	-	-	20.0
	2-	136 - 175	10	3	16.3	43.0	3.9	26.0			3.0	7.8	1.9	5.0	1.1	3.0	2.1	5.5	-	-	38.3
	3-	176 - 215	10	2	21.5	33.2	13.6	21.0	5		6.6	10.2	3.9	6.0	3.5	5.4	6.5	10.0	4.0	6.2	64.7
	4-	216 - 255	11	5	30.0	25.0	17.4	14.5	7		14.4	12.0	10.2	8.5	8.4	7.0	14.9	12.4	17.5	14.6	121.0
	5-	256 - 295	8	3	22.8	17.5	6.5	5.0	1		20.8	16.0	13.0	10.0	13.7	10.5	23.8	18.3	28.0	21.5	129.7
	6-	296 - 335	7	2	15.7	8.7	-	-	-		36.0	20.0	21.6	12.0	18.9	10.5	37.8	21.0	50.0	27.8	176.5
	7-	336 - 375	6	1	8.4	4.0	-	-	-		44.1	21.0	26.9	12.8	23.1	11.0	46.2	22.0	61.3	29.2	203.8
			60	13																	
	1-	96 - 135	9	4	3.1	30.0	2.3	22.8	0.8	7.8	1.2	12.2	0.6	6.4	1.3	13.2	-	-	10.2		
	2-	136 - 175	11	6	6.0	27.5	2.2	10.0	1.1	5.0	3.1	14.0	1.9	8.5	1.8	8.0	3.5	16.0	2.4	11.0	21.8
	3-	176 - 215	9	5	12.4	25.0	4.0	8.0	-	-	7.7	15.5	4.9	9.9	4.1	8.2	8.9	18.0	7.6	15.4	49.4
	4-	216 - 255	11	5	10.9	18.0	3.3	5.5	-	-	9.6	16.0	6.0	10.0	5.4	9.0	12.2	20.3	12.8	21.2	60.3
	5-	256 - 295	7	3	6.7	9.0	1.0	1.3	-	-	14.5	19.6	8.1	11.0	7.6	10.3	15.5	21.0	20.6	27.8	74.0
	6-	296 - 335	7	3	-	-	-	-	-	-	27.1	22.0	16.0	13.0	13.5	11.0	28.0	22.7	38.6	31.3	123.2
	7-	336 - 375	6	1	-	-	-	-	-	-	35.8	22.0	21.1	13.0	17.9	11.0	36.9	22.7	50.9	31.3	162.5
			60	30																	

TABLE 4

Number in thousands and percentage composition of various ffod items in guts of **Mugil capito** at different length groups from three stations in Lake Quarun during spring 1986.

Stations No.	Length groups (cm)	No. of fish examined	No. of fish empty	Chrysophyta		Chlorophyta		Cyanophyta		Copepoda		Flagellata		Foraminifera		Detritus		Sand grains		Total
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No
station I (in front El-Bats) (Main)	1- 96 - 135	10	--	9.9	49.0	6.0	29.3	2.1	10.5	1.8	8.7	0.5	2.3	-	-	-	-	-	-	20.3
	2- 136 - 175	9	--	18.5	46.0	10.9	27.0	3.6	9.0	4.1	10.2	0.6	3.0	1.9	4.8	-	-	-	-	40.2
	3- 176 - 215	8	-	25.4	38.6	15.2	23.0	5.6	8.5	7.1	10.7	3.8	5.7	4.9	7.5	4.0	6.0	-	-	65.9
	4- 216 - 255	9	-	27.9	28.0	12.9	13.0	5.9	6.0	11.9	12.0	6.5	6.6	8.6	8.7	8.4	8.5	17.0	17.2	98.8
	5- 256 - 295	10	1	22.2	19.3	2.9	2.5	-	-	19.9	17.3	10.7	9.3	11.1	9.6	19.6	17.0	28.8	25.0	115.2
	6- 296 - 335	8		24.1	12.4	-	-	-	-	38.9	20.0	20.0	10.3	19.1	9.8	38.9	20.0	53.5	27.5	194.5
	7- 336 - 375	6	-	17.5	7.0	-	-	-	-	52.6	21.0	27.6	11.0	26.3	10.5	51.4	20.5	75.2	30.0	250.6
		60	1																	
station II (Kher Maher)	1- 96 - 135	7	-	13.8	51.2	0.1	30.0	3.0	11.0	1.1	4.0	0.6	2.3	0.4	1.5	-	-	-	-	27.0
	2- 136 - 175	9	-	41.0	48.8	24.5	29.2	8.4	10.0	4.2	5.0	3.4	4.0	2.5	3.0	-	-	-	-	83.6
	3- 176 - 215	9	-	38.0	40.0	23.6	24.8	9.5	10.0	6.7	7.0	6.2	6.5	4.5	4.7	2.9	3.0	3.8	4.0	95.2
	4- 216 - 255	10	-	38.4	30.0	19.2	15.0	11.4	8.9	12.8	10.0	9.9	7.7	10.2	8.0	12.4	9.7	13.7	10.7	128.0
	5- 256 - 295	9	-	39.0	20.5	5.7	3.0	3.8	2.0	32.3	17.0	17.1	9.0	17.1	9.0	35.2	18.5	39.9	21.0	193.0
	6- 296 - 335	9	1	34.3	14.9	4.1	1.8	-	-	43.7	19.0	23.5	10.2	22.8	10.0	44.6	19.4	56.8	24.7	228.5
	7- 336 - 375	7	-	26.1	9.0	-	-	-	-	58.9	20.3	32.5	11.2	31.9	11.0	59.5	20.5	81.2	28.0	286.4
		60	1																	
station III (El-Rehabila)	1- 96 - 135	9	-	6.3	44.0	3.6	25.0	1.4	10.0	1.3	8.8	1.0	6.7	0.8	5.5	-	-	-	-	14.3
	2- 136 - 175	8	-	18.0	40.0	6.3	14.0	3.6	8.8	4.2	9.3	3.1	7.0	3.0	6.7	2.0	4.4	4.8	10.6	44.9
	3- 176 - 215	6	-	18.7	35.0	5.6	10.5	2.7	5.0	5.6	10.5	3.8	7.2	4.2	7.8	4.8	9.0	8.0	15.0	53.4
	4- 216 - 255	9	-	13.9	19.2	5.1	7.0	-	-	11.4	15.7	6.4	8.8	5.8	8.0	13.2	18.3	16.6	23.0	72.3
	5- 256 - 295	9	1	12.8	13.5	1.4	1.5		-	17.3	18.2	8.5	9.0	8.1	8.5	19.9	21.0	26.8	28.3	94.8
	6- 296 - 335	8	-	5.7	3.8	-	-		-	32.4	21.5	19.6	13.0	13.8	9.2	32.4	21.5	46.7	31.0	150.5
	7- 336 - 375	11	1	-	-	-	-	-	-	45.2	21.5	27.3	13.0	25.2	12.0	47.3	22.5	65.1	31.0	210.0
		60	2																	

most important natural food of young mullet (**M. capito**) collected from Mediterranean coast of Israel. Kraul (1983) stated that the juevenile grey mullet (**M. cephalus**) feed on cultured copepods. It appears, from the contrary of pervious opinions that the feeding rate of M. capito is food availability dependence.

As the fish increase in size (T.L. of 176 to 295) the diet is mixed and consists of phytoplankton, zooplankton, detritus and a few amounts of inorganic materials (sand grains). El-Ghazzawy (1933) analysed the stomach content of **M. capito** and **M. cephalus** collected from the natural habitat in Egypt and he mentioned that the food mainly consists of benthic diatoms, detritus materials, portions of fresh water algae and microorganisms which are also frequent. The food of these two species at Mex Canal and Lake Borollus in Egypt was a mixture of diatoms, detritus, algae and parts of animal organisms (Bishara, 1967 and El-Sedefy, 1971).

It is noticed that the fish of largest size (groups 6 and 7) tend to eat animal organisms, detriuts and sand grains with great amounts. Copepoda Flagellata and Foraminifera are the most important animal organisms which composed average of 18.0%, 11.0% and 9.0% of the diet respectively. The average percentage composition of detritus and sand grains are 20.8% and 25.7% respectively. Luther (1962) observed that the adult and fingerlings of grey mullet species (**M. cephalus**) subsist mainly on decayed organic matter (detritus) and foraminifera supplemented by decaying plant and animal matter Odum (1968) reported that **M. cephalus** prefers very fine particles wherever sediments are involved in feeding. He suggested that the small inorganic and plant detrital sediment particles are richer than the coarser material that the mullet rejects. Hickling (1970) mentioned that mud particles and food fly into the mouth by strong reaction and after a few seconds a part of the soil is rejected from the mouth. The mullet as a whole is a grazer, feeding on living or dead organic materials (detritus) accumulated on the bottom of Lake Borollus (El-Maghraby et al., 1974). Zismann et al., (1975) found that copepods are the most important food in all sizes of grey mullet collected from Haifa Bay region in Israel. There is no sand grains on detritus in stomachs of grey mullet species under 25 mm long and the sand or detritus particles increased with length of the fish (De Silva and Wijeyratne, 1977).

From the work of Das and Chowdhury (1984) the stomach content of the grye mullet collected from the Matamuhury River estuary, Bangladish consists of diatoms, algae, copepods, sand grains and decayed organic matter (detritus) and the percentage of these items were 40.25%, 13.50%, 7.92%, 26.58%. and 11.75%. These findings in general are in line with the present observations.

The present investigation suggests that the diet of **M. capito** (T.L. ranged from 96 to 375 mm) in the three sampling stations consists of chrysophyta, chlorophyta, cyanophyta, copepoda, flagellata, foraminifera, detritus and sand grains. In case of first station (In front of El- Bats Drain), the percentage composition of these food items are 30.2, 16.8%, 8.5%, 11.6%,

7.4%, 6.0%, 12.5% and 19.2% respectively. In second station (Khor Maiuf) these items composed 32.3%, 17.5%, 9.5%, 10.8%, 6.5%, 5.2%, 11.4% and 14.8% of the diet of the fish respectively. In third station (El-Rawashdia) the mean percentage composition are 27.4%, 15.8%, 7.0%, 13.0%, 7.8%, 14.0% and 20.2% respectively.

It is noticed that, the plant organisms (chrysophyta, chlorophyta and cyanophyta) in the gut of the fishes in Khor Maiut (Station II) are higher than in the other two stations (infront of El-Bats Drain and El-Rawashdia). This is attributed to the abundance of a great amount of phytoplankton organisms, total number about 564,250 x $10^3/m^3$ in spring months in the water of Khor Maiuf station as a result of the favourable ecological condition where the high oxygen content (5.90 mg/l), low salinity (29.29%) and pH value (7.4), great amount of total alkalinity (360.85 mg/l), optimum amount of phosphates (1.05 mg/l) and nitrates (0.75 mg/l), depth of water (2.36 m) and optimum transperancy (91.47 m) are recorded.

In addition, the higher water temperature of Khor Maiuf (30.5°C in summer) stimulates the development of chrysophta (diatoms) and other microorganisms needed as the basic food supply for the fry and young mullet species (Zambriborch, 1949).

However, the animal organisms (copepoda, flagellata and foraminifera), detritus and sand grains are highest in fish gut of El-Rawashdia station and lowest in fish gut of Khor Maiuf station. This may be attributed to the presence of high numbers of zooplankton organisms, total number 102,894 /m^3 in spring in the water of El-Rawashdia region.

It is also noticed that the sand grains are high in fish gut of station III than the other two stations. This is due to the nature of the bottom of the Lake in this region. The nature of bottom is muddy in station I, muddy sand in station II and sandy-mud in station III.

The present data reveal that the stomach fullness in the third station is lower than that in the other two stations as its physico-chemical properties are the responsable for this. The high salinity, low oxygen content, low amounts of phosphates and nitrates elevation of pH value in the third station act to drop nourshment of phytoplankton organisms, and accordingly the feeding is less.

Analysis of stomach content of **M. capito** has also been studied seasonaly from summer 1985 to spring 1986. From the present data, it is noticed that **M. capito** feed mainly on plant maerials in summer months, while the animal materials, detritus and sand grains are consumed in winter months. However, in autumn and spring the diet of the fish is mixed. This shows that zooplankton consumption is less during summer months as the zooplankton crop of the Lake is poor (average number is 6567/m^3). While the phytoplankton utilization is greater during summer where the Lake is richer in phytoplankton population (average number is 117,750 x 10^3/ m^3).

It is also observed that the stomach fullness is highest in spring and summer, while it is lowest in autumn and winter. This may be attributed to low rate of feeding in autumn and winter, which is due to the fact that in this period the fish forms its gonads (El-Maghraby et al., 1974) and also due to low water temperature (23.5°C in autumn and 16.9°C in winter). De Silva and Wijetratne (1977) found that the number of food organisms in stomachs of young grey mullet increased from April (spring) to maxima in June and August (summer).

It can be concluded that **M. capito** is omnivorous fish eating both plant and animal materials, the same trend was found by several authors (Naguib, 1961; Bishara, 1967; El-Sedafy, 1971; Albertini-Bernaut, 1974 and De Silva, 1980).

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