

**Fish Populations in Lake Burullus (Egypt) - III.- Selective Feeding of
Mugil cephalus and *Liza ramada***

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The food preferences and feeding patterns for different size groups, i.e. young-of-the-year (group I), yearlings (group II) and adults (group III), of *Mugil cephalus* and *Liza ramada* from Lake Burullus was studied using three methods of analysis.

The volumetric method of RICKER (1941) demonstrated the feeding patterns of both species based on a high correlation between the existence of sand particles and the occurrence of foraminifera in the stomachs of the individuals under consideration, on one hand, and the amount of detritus vs. the availability of bottom animals such as molluscs and annelids, on the other hand. It should be mentioned, however, detrital particles in the stomach of mullets were not considered as prey since ODUM (1970) have proved that mullets utilize the organic fraction of the soft mud deposited in coastal lagoons and are able to concentrate them in their bodies by a factor of 100:1.

The results suggest, therefore, that young-of-the-year *L. ramada* feed in mid-water, while older fish eat close to the bottom searching for foraminifera and annelids among sand that constitutes 17.5% of the food ingested. While adult fish tend to feed in mid-water on epiphytic algae attached to the surface of hydrophytes. In the case of *M. cephalus*, on the other hand, young-of-the-year were found to feed near the surface, and as the fish grow older they tend to feed close to the bottom and scratching epiphytic algae adhered to hydrophytes.

The numerical method of HYNES (1950) suggested the possible transform in the feeding habits of mullets in the lake. Thus *M. cephalus* was found to be strictly carnivorous as young-of-the-year and becomes omnivorous as adult. *L. ramada*, however, was found to be highly versatile in its feeding habits, the young-of-the-year were found to consume plant prey at a relatively higher level than animal prey. The yearling fish, on the contrary, were found to consume more animal prey than plants. The situation is reversed again in adult individuals.

The electivity index of IVELV (1961) demonstrated the selective behavior of the different size groups of mullets in lake Burullus. It was found that *M. cephalus* will prefer animal to plant matter, this is quite clear especially in the young-of-the-year individual, where strongly selective feeding of animal diet occurs. In the yearling and adult fish, however, the diet seem to be rather balanced, yet it is still deviated towards animal matter of the sedentary nature, suggesting that the individual of this species feed closer to the bottom as they grow older. Table 1 showed that the amount of sand, detritus increase soundly in older individuals as they are accidentally ingested while the fish is seeking for its target animal prey.

For *L. ramada*, on the other hand, the diet is more deviated to the plant matter of the diet options. Even with regard to plant matter, selectivity is discernible with preference to Dinoflagellates, green and blue-green algae to diatoms. Moreover, adult individuals have much of a choice in their plant diet than young-of-the-year and yearling individuals. Yearling *L. ramada* eats a larger variety of animal matter than the other size groups, this species have a positive selection to cladocerans. On the other hand, it is strikingly obvious that *L. ramada* of any size does not at all feed on molluscs, nematodes, or ostracods.

Electivity index of food items ingested by different size groups of *M. cephalus* and *L. ramada* from Lake Burullus during 1987.

Food Items	<i>M. cephalus</i>			<i>L. ramada</i>		
	Gp I	Gp II	Gp III	Gp I	Gp II	Gp III
Diatoms	-0.80	-0.77	-0.66	-0.41	-0.87	-0.87
Chlorophytes	-1.00	-0.66	+0.64	-1.00	-0.24	+0.67
Cyanophytes	-0.79	+0.40	-0.10	-0.71	+0.31	+0.14
Dinoflagellates	-1.00	+0.76	-0.58	+0.91	-1.00	+0.85
Foraminifera	-1.00	+0.28	+0.54	-1.00	+0.67	+0.70
Annelids	-1.00	-1.00	+0.99	-1.00	+0.99	-1.00
Copepods	+0.34	-0.39	+0.11	-1.00	-1.00	-1.00
Molluscs	-1.00	+0.99	-1.00	-1.00	-1.00	-1.00
Nematodes	+0.99	+0.98	+0.98	-1.00	-1.00	-1.00
Ostracods	+0.78	+0.70	-1.00	-1.00	-1.00	-1.00
Cladocerans	+0.77	+0.64	+0.64	+0.83	+0.75	+0.63

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