

DISTRIBUTION AND ABUNDANCE OF LARVAE OF THE FAMILIES THUNNIDAE AND MULLIDAE IN THE BALEARIC WATERS.

Antonio Dicenta, Inst. Español de Oceanografía, C/ Alcalá 27, Madrid

Concha Franco, Inst. Español de Oceanografía, C/ Alcalá 27, Madrid

Ana Lago de Lanzós, Inst. Español de Oceanografía, C/ Alcalá 27, Madrid

oooooooooooooooo

ABSTRACT

The distribution and abundance of the larvae of the families Thunnidae and Mullidae, captured during two surveys made in June and July, are presented with data comparing their densities with those of previous years as a way to monitor changes in the relative importance of the spawnig every year.

INTRODUCTION

During the months of June and July, 1982, we have made two ichthyoplankton surveys around the Balearic islands (Mallorca and Menorca), with the objectives to find the distribution and abundance of the larvae belonging to the families Thunnidae and Mullidae. The results of these surveys with a comparison of the relative densities of these larvae with that of preceding years it is what we present here.

METHODOLOGY

The quantitative ichthyoplankton samples have been collected with a modified Juday-Bogorov net, with a mesh size of 250 microns and equipped with a flowmeter, in doble oblique tows to an aprximate depth

of 50 m. The average water filtered per tow has been 169 m^3 . The stations covered in June and July are shown in figures 1 and 2 respectively.

RESULTS AND DISCUSSION

In June we did not find any larva of the family Thunnidae. The distribution of the striped mullet (Mullus barbatus L.), in this month, it is reduced mainly to an area in front of the bay of Palma (Fig. 1).

The mean density per square meter per positive station in that area is 0.78 larvae.

In July the distribution of larvae of M. barbatus is very wide (see Table I). Their mean density during this month is 0.81 larvae per square meter, in the positive stations.

We did not find any larvae of red mullet (M. surmuletus L.), neither in June nor in July.

In July we have found larvae of three species of Thunnidae: bluefin tuna (Thunnus thynnus L.), albacore (Thunnus alalunga, Bonn.), and frigate mackerel (Auxis rochei, Risso).

Bluefin tuna larvae were located only in an area close to the island of Cabrera (see Table I and fig. 2). The mean density in the three positive stations is 0.86 larvae per square meter. In total we have found 12 larvae of this specie.

Albacore larvae were more wide spread than those of bluefin, and they were more abundant in stations far from the coast (see Table I and fig. 2). The mean density per positive station is 0.42 larvae/m^2 .

The larvae of frigate mackerel are also very widespread, appearing in almost all our stations (see Table I and fig. 2). Their average density per positive station is 0.64 larva/m^2 .

St.	<u>T. thynnus</u>	<u>T. alalunga</u>	<u>A. thazard</u>	<u>M. barbatus</u>
1			.31	
2	1.30	.21	.64	
3	.83	.20		
4	.47	.71		
5			.60	1.51
6			.27	
7				
8		.30		1.49
9		.22	1.28	.22
10				
11		1.30	.52	.26
12			.28	.28
13			.29	.29
14				
15			1.60	
16				
17			.28	.28
18		.25		.25
19			.81	2.03
20			.28	2.00
21			.30	.30
22		.38	1.53	
23				
24			.90	
25		.32	.32	
26			1.09	2.56
27			.41	.82
28			.18	.18
29				.45
30		.35	1.22	.35
31			.24	.49

TABLE I. Larval densities per square meter, in July.

We believe that the control of the relative abundances of the eggs and larvae in time and space will help to monitor changes in the relative importance of the spawning every year. That is why we have compared the spawning intensity, in different years, in the mediterranean.

For bluefin tuna larvae we have data on their spawning intensity for the years 1974, 75 and 77 (Dicenta et al. 1975, 1977, 1978 and 1980). In 1974, in the area close to the island of Cabrera, their mean density was 0.73 larvae/m². For the western mediterranean the mean densities for 1975 and 1977 were respectively 0.53 and 0.20, per square meter per positive station.

For the larvae of albacore, the mean density for 1974, in the area close to Cabrera is 0.14. and in the western mediterranean in 1975 and 1977, the densities were 0.18 and 0.20 respectively.



Fig. 1.- Stations of the June survey. Big dots indicates presence of larvae of *Mullus barbatus*.

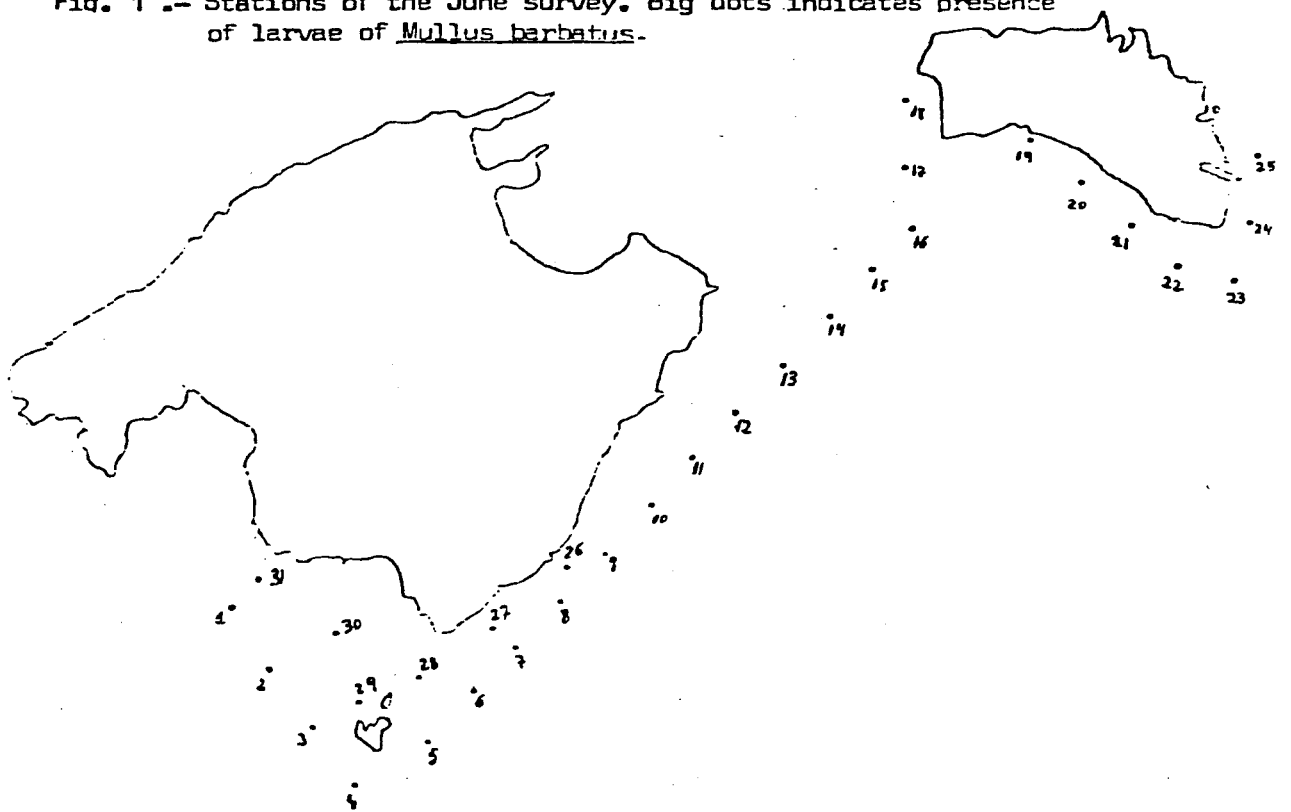


Fig. 2.- Stations in July's survey.

Finally, those densities for the larvae of frigate mackerel in 1974, near Cabrera, were 0.77 and in the western mediterranean in 1975, were 2.27 larvae/m².

The continuity in the collection of this type of data will help in forecasting year-class strength and the abundance of the reproductive stock.

As a conclusion to this work we want to recall the attention to the importance of continuous and routine plankton sampling throughout the years as a way to monitor changes in the spawning intensity and find the correlation of those changes with the year class strength of the species considered.

BIBLIOGRAPHY

- Dicenta, A., Piccinetti, C., and Piccinetti Manfrin, G. - 1975.- "Observaciones sobre la reproducción de los túnidos en las islas Baleares". Bol. Inst. Esp. Oceanografía, nº 204, pp 25-37.
- Dicenta, A., 1977.- "Zonas de puesta del atún (*Thunnus thynnus* L.) y otros túnidos del mediterraneo occidental y primer intento de evaluación del "stock" de reproductores de atún". Bol. Inst. Esp. de Oceanografía, T. II, nº 23, pp 109-135.
- Dicenta, A., Piccinetti, C., 1978.- Desove del atun (*Thunnus thynnus* L.) en el mediterraneo occidental y evaluación directa del stock de reproductores, basado en la abundancia de sus larvas". ICCAT, Collective Volume of Scientific Papers, Vol.VII, SCRS/77/33.
- Dicenta, A., Piccinetti, C., 1980. - "Comparison between the estimated reproductive stocks of bluefin tuna (*Thunnus thynnus* L.) of the Gulf of Mexico and western mediterranean." ICCAT, Collective Volumen of Scientific Papers, Vol. IX, SCRS/79/45.

