

In may 1982, an Ictyoplankton survey was done in the Spanish Mediterranean sea in order to spot posible areas of commercial interesting species.

44 stations were considered, 18 in the Alboran sea, 21 in the Gulf of Vera and the Gulf of Alicante, and 5 in the Balearic sea (fig. 1), using for the sampling a 335 μ . Juday Bogorov net with a "2031 General Oceanic" flowmeter.

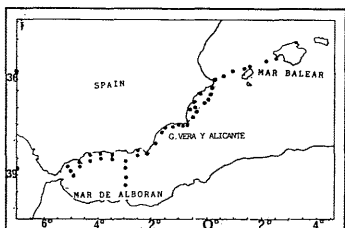


Fig. 1.- Stations Situation.

decreasing northward with a minimum in the Gulf of Vera (0.19 eggs/m² in station 24) and disappearing from this zone for the time of the survey (may) that could represent the end of the spawning of this species in the Mediterranean Sea (Fage, 1920) (fig. 2 and 3).

Engraulis encrasicolus starts to spawn in this time with its density growing through the itinerary followed. Its presence reaming practically constant with the maximum of eggs and larvae in the Gulf of Alicante (63 eggs/m² in station 28, and 53.62 larvae/m² in station 34) (fig. 4 and 5).

The maximum values in the Alboran sea are found in the stations near Malaga where the superficial temperatures are higher than 18 °C (Gil, 1985).

The horse mackerels, *Trachurus trachurus* and *T. mediterraneus* were only found in the Alboran sea without clearly defined spawning points (1.30 larvae/m² maximum).

The mullet were captured only in the Balearic sea with a maximum in the inner part of the Bay of Palma (5.25 larvae/m²). They all belong to the species *M. surmuletus* which would confirm. the earlier spawning period of this in relation to *M. barbatus*.

As for, the rest of the species, they change according to the 3 areas studied (fig. 6), the main groups being always myctophidae and sparidae but in the Balearic shore where the stomiatidae are dominant.

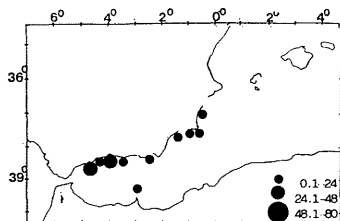


Fig. 2.- Sardine eggs/m² (May, 1982)

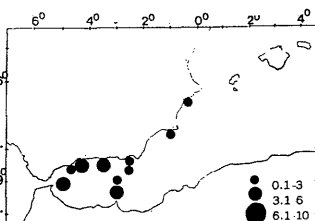


Fig. 3.- Sardine larvae/m² (May, 1982)

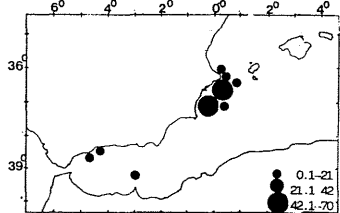


Fig. 4.- Anchovy eggs/m² (May, 1982)

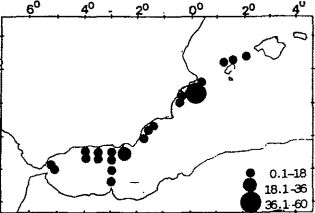


Fig. 5.- Anchovy larvae/m² (May, 1982)

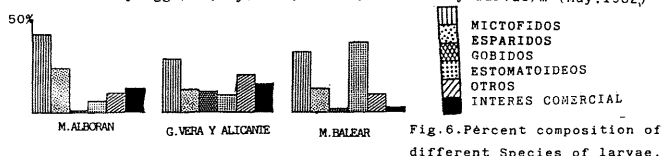


Fig. 6. Percent composition of different Species of larvae.

References

Fage, L (1910). Engraulidae, Clupeidae. Rep. Danish Oceanogr. Exped. 1908 - 1910. Med. adjac. Seas, 2, Biology. A. 9, 140 pp., Fig. 1-49
 Gil, J (1985). Resultados de la Campaña Alsarev en el Mar de Alborán en mayo de 1982. Informes Técnicos I.E.O. n° 34

CO-OCCURRENCES OF ANCHOVY (*ENGRAULIS ENCRASICOLUS*) AND GILT SARDINE (*SARDINELLA AURITA*) EGGS AND LARVAE OFF THE EBRO RIVER DELTA (CATALAN COAST)

Isabel PALOMERA

Instituto de Ciencias del Mar, Paseo Nacional s/n, Barcelona (España)

Résumé

Nous avons étudié les oeufs et larves d'Anchois et Allaches récoltés près du delta de l'Ebre pendant le mois d'août 1985. Il semble que la ponte de l'Anchois ait lieu près de l'embouchure de l'Ebre, se dispersant dans toute la zone où se trouvent également des larves, même sur le talus. Les oeufs d'Allache ont une distribution très différente, en deux branches séparées du delta, mais les larves se trouvent aussi dispersées.

The coincidence of the spawning season of two clupeiform fishes, anchovy and gilt sardine, in summer, in this area, made us to consider the study of the distribution of the eggs and larvae in order to analyse the possibility of interactions between the two species occupying the same trophic level.

During august 1985 a cruise was carried out on the continental shelf off de Ebro river delta, from 40°59'N to 40°09'N, with some stations on the slope. A total of 20 stations were occupied. Oblique plankton samples were taken with a Bongo net.

The distribution of the anchovy eggs shows (Fig. 1-A) that the spawning takes place near the mouth of the river and that the eggs are distributed all over the area but are never found in the stations located on the slope. The mean abundance is 42.05 eggs under 10 m² of surface sea. Anchovy eggs were found in the majority of stations (Table I). Gilt sardine eggs have a mean abundance of 34.0, very similar to anchovy eggs but they were only present in 5 stations. If we look at the figure (1-C) we can see that this distribution is concentrated in two areas that could mean that this species avoids the influence of the river, showing a different pattern than the one shown by the anchovy.

Anchovy larvae (Fig. 1-B) are widespread distributed, more concentrated in the central part and are even present on the slope, where the most larger larvae are found. The abundance is 186.65 larvae under 10 m², and the standard length ranges from 2.5 to 14 mm. In the case of gilt sardine the mean abundance is 399.25, almost double of the number of anchovy larvae, and with predominant abundance of larvae of early stages. They are mainly concentrated in the central part of the area (Fig. 1-D) where we have caught 3812 larvae under 10 m² in the most abundant catch. Very few larvae appear near the delta and at the slope where as it happens to the anchovy, the most larger larvae have been caught.

The surface temperature ranges from 23.98 to 26.45°C, decreasing from north to south. It does not seem that temperature has any influence in the pattern of distribution of both species, anchovy and gilt sardine

TABLE I

	Tot. st.	Pos. st.	Abundance(X)(n ² /10m ²)		Range n2	Standarddev. σ_n
			Tot. St.	Pos. St.		
ANCHOVY						
Eggs	20	15	42,05	56,06	7 - 269	65,23
Larvae	20	18	186,65	207,39	15 - 656	189,61
SARDINELLA						
Eggs	20	5	34,0	136,0	17 - 278	101,24
Larvae	20	15	399,25	532,33	8 - 3812	1039,26

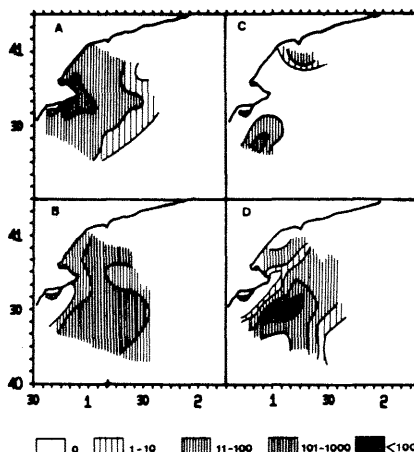


Fig. 1.- Eggs and larvae distribution of anchovy (A, B) and gilt sardine (C, D) off Ebro river delta (n²/10 m²).