Fishery and Growth of *Aphia minuta* off Majorca Island

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Aphia minuta or "jonquillo" is a pelagic neritic species, belonging to the family Gobiidae, captured around Majorca Island during the months of December through March by the artisanal fishery fleet. Its importance is based on the fact that it has a great acceptance on the market together with the price it reaches, and because it is one of the few specific fisheries of the winter season tor the coastal fleet.

The "jonquillo" is captured with a fishing-net ("jonquillero") which combines purse-seine and trawling. This species meets during the winter months forming shoals for reproductive purposes. Its pelagical habits during this period allow finding them easily using the echo sounder. They are basically found inside the bays (Palma, Pollensa and Alcudia), at bottoms between 20 and 70 meters of depth, above sand and seaweed areas (*Posidonia oceanica*).

In figure 1 the importance of captures of "jonquillo" from Majorca Island in the last ten years can be observed, with amounts that lay between 20 and 80 metric tons.

The length-frequency distribution from December 1990 to March 1991 is shown in figure 2. The range of sizes oscillates between 14 and 45 mm. The average size by month is doubled from the beginning to the end of the season.

Batacharya's Modal Progression Analysis (1967) was applied to these data, in order to identificate different cohorts. In table 1 we may observe a monthly series of length modes which go on evolving in time. The mean average increases by month.

To interpret these data and being *Aphia minuta* a species of one year of life span, we determinated the age of the individuals by using the daily growth rings on otoliths *sagit-ta* (METHOT and KRAMER, 1979).

The otoliths (N = 20) belonged to fishes between 17 and 44 mm of total length corresponding to ages from 64 to 217 days. The good accordance on sizes and age strongly suggested the adecuation of the daily rings for ageing the species. However, further validation is necessary.

Figure 1.- Captures from 1982-91.

The growth parameters (VON BERTALANFFY, 1938) were calculated by a stadistical programme which uses the Marquant's algorithm ("Fishparm") by the iterative calculation of parameters, and by the method based on the length-frecuency analysis ("Elefan", PAULY and DAVID, 1981).

The growth parameters determined are :

1) Otoliths : $L_\infty = 42.62$ mm ; $K = 6.35$
2) ELEFAN : $L_\infty = 45.62$ mm ; $K = 6.352$; $t_0 = 0.1123$.

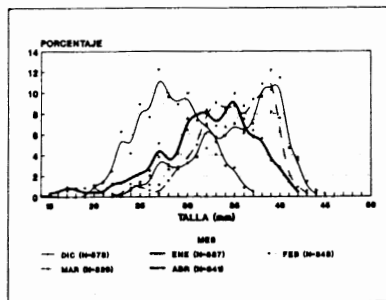| XII	I	II	III	IV
	17	19	25	27
25	26	30	33	34
30	35	38	39	39
35	39			

Table 1.- Modal clases by month.

Figure 2.- Length distribution of "jonquillo" off Majorca.

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