

Striped mullet is a demersal fish species distributed throughout the Mediterranean Sea and presenting a high commercial value. Few studies exist concerning the age and growth of the species (GHARBI & KTARI, 1981; ANDALORO & PRESTIPINO-GIARRITTA, 1985; MORALES-NIN, 1986; VASSILOPOULOU & PAPACONSTANTINO, 1991), while there are no data on its sexual maturity. The aim of this study is to provide information on the period of reproduction, the length at first maturity (L_{50}) and the sex ratio of the striped mullet in Greek waters.

Sampling was carried out seasonally in the Aegean Sea in 1991-1992, using a 500HP commercial trawler having a cod-end mesh size of 14mm from knot to knot. In 402 specimens, fork length (FL) to the nearest millimetre, weight to the nearest gram and sex were recorded. Gonadal maturity was determined according to Nikolsky's scale (1976) (Stage I: juvenile immature gonads; II, III: adult immature; IV, V: mature; VI: spent). From Figure 1, it is obvious that the sexual maturity process begins in early spring, peaks in late spring-early summer and is completed in late summer, since in September only one specimen, whose gonads were at spent condition was collected, the rest being immature (mainly stage II).

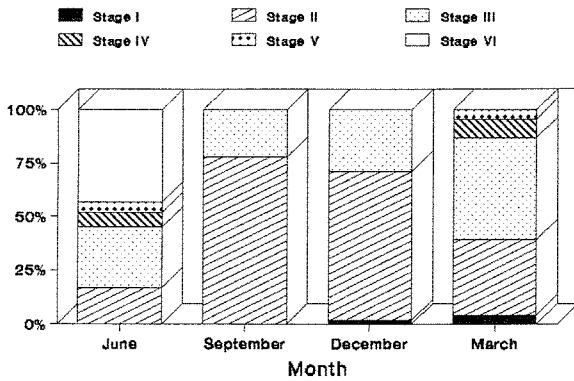


Fig. 1. Maturity stages of the striped mullet gonads collected seasonally in the Aegean Sea.

The length at first maturity was calculated according to ASHTON (1972) and GUNDERSON (1977) and was found to be $L_{50}=103.8$ mm FL for males and $L_{50}=135.1$ mm FL for females. Hence, taking also into account our results on the age and growth of the species (VASSILOPOULOU & PAPACONSTANTINO, 1991), it appears that the males mature at least one year earlier (at age 1 year) than females (at age 2 years). The earlier onset of maturity in males could be a factor influencing their growth rate, which is slower than that of females, in ages greater than 1 year. The application of χ^2 -test revealed that males were significantly more numerous than females in June and September, while in December and March the domination of males was statistically insignificant (Table 1). In relation to size, males outnumbered females till 180 mm (Fig. 2), then females were encountered more frequently, dominating completely in sizes larger than 230 mm FL.

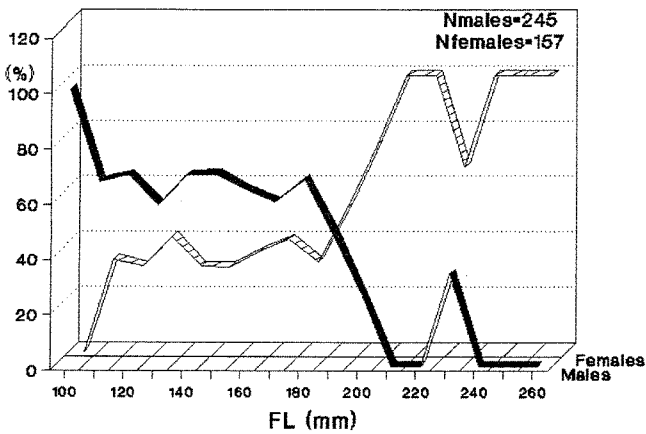


Fig. 2. Sex-ratio (%) of the striped mullet in each size interval.

	Males	Females	χ^2	P
June	94	60	4.84	<0.05
Sept.	44	18	17.64	<0.001
Dec.	74	56	1.96	>0.05
March	33	23	3.24	>0.05

Table 1: Number of males and females in the 4 sampling months, with χ^2 test and probability level values.

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One of MEDASSET's prime objectives is the concerted effort to thoroughly survey the coastal areas of the Mediterranean in order to identify the presence of sea turtle (Loggerhead, *Caretta caretta*, and Green, *Chelonia mydas*) in these areas. Specific ecology of the coastal regions is logged as turtles cannot be successfully protected unless all their reproductive habitat is known. Recommendations for implementation of protective measures are made to the states involved if any important ecosystems or turtle nesting sites are found.

A. The coastal area of the North Aegean Sea, mainland and islands, totalling 2,000km was surveyed in 1991. Beach types and hind-beach sand dunes were documented. No significant turtle nesting was found in the region, probably due to unfavourable climatic conditions in the North of the Mediterranean. However, a large non-nesting population was present at sea. (Co-funded by the EC).

B. Nesting site and sand dune assessment of Sardinia, covering 750 km of coast, with emphasis on the Gulf of Orsei was undertaken in 1990 and 91. The reported exploitation of marine turtles was also investigated. Turtle nesting in the Western Mediterranean is almost non-existent nowadays. The aim of the project was to discover whether Sardinia was a final nesting possibility in this area of the Mediterranean. However, tourism had almost completely overrun the beaches making nesting almost impossible. A continuing presence of adult and sub-adult Loggerhead off shore was confirmed but no evidence of turtle nesting was found. (co-funded by the EC).

C. The first ever survey of Syria's 200 km coast was undertaken in 1991, investigating the possible occurrence of nesting sea turtles. The Syrian Coast is possibly the most polluted in the Mediterranean, with plastic waste covering much of the beach splash zone and raw sewage being piped directly into the sea. Despite of this a turtle nesting presence was discovered. Indeed one beach, between Jeble and Latakia, was found to contain a concentration of nesting activity but all nests had suffered from complete predation, probably due to humans. Protection of this beach region from touristic or industrial development is recommended. (Co-funded by HCI [UK] and MEDASSET).

D. In 1993, Phase I of surveying the Egyptian Mediterranean coast, from Alexandria to El Salum, was completed. These 600 km of coast was documented according to its physical and biological characteristics. Loggerhead turtles were found to nest there in small numbers. This was the first documented occurrence of marine turtles nesting in this area. Pollution was rife in some localities and touristic development is progressing rapidly, both are threatening to destroy some ecologically unique and important coastal regions. (Co-financed by MEDASSET, RAC/SPA Tunisia and NIOF Alexandria -in kind).

E. The sixth year of an ongoing assessment of the incidental catches of Loggerhead turtles on swordfish long lines in the Greek Ionian Waters was completed in 1994. It is run by Archipelagos in collaboration with the captains of up to eight vessels based on the island of Kefalonia. Turtles are caught in 25% of the fishing trips. Most commonly, one turtle is caught per long line but up to three have been recorded. A majority of turtles caught are juveniles (less than 75cm long). Vital size, sex and capture location data of the turtles is being recorded by the fishermen. The turtles are returned, invariably alive, with hooks still in their mouths, back to the sea. This project has been the perpetrator of a positive attitude towards the turtles by the otherwise impartial captains. (Archipelagos project. Co-financed by GAWF [UK], MEDASSET and Archipelagos).



MEDASSET ACTIVITIES 1990-1993

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