

THE GROWTH OF CHTHAMALIDAE (CRUSTACEA, CIRRIPEDIA) IN THE GULF OF GENOA.

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Résumé - On rapporte quelques données sur l'accroissement des trois espèces de Chthamalidae (Crustacea, Cirripedia) présentes le long de côtes du Golfe de Gênes: Euraphia depressa (Poli), Chthamalus stellatus (Poli) et C. montagui Southward.

Summary - Growth rates of three species of Chthamalidae (Crustacea, Cirripedia), Euraphia depressa (Poli), Chthamalus stellatus (Poli) and C. montagui Southward, living along the rocky coast of the Gulf of Genoa, are described.

In the Ligurian sea three species of Chthamalids are present: Euraphia depressa (Poli), Chthamalus stellatus (Poli) and C. montagui Southward; they are typical components of the rocky shore communities at the mediolittoral and supralittoral levels (sensu Peres and Picard, 1964), in which very severe ecological conditions occur. Data on age and growth of these Cirripeds are very scarce and generally limited to specimens observed under experimental conditions, for instance in constant submersion (Barnes, 1956; Klepal and Barnes, 1975). Since 1971 data on the settlement and growth of in situ Ligurian Chthamalidae were collected for rocky surfaces in different habitats near Genoa; unfortunately at that time the species Chthamalus stellatus and C. montagui had not yet been separated. However, the observations allowed us to verify that single specimens can live for more than ten years (Relini, 1983). More recently, from January 1981 to July 1984, groups of specimens of the three Ligurian species, occupying small areas (20X30 cm) at different exposures and distances from mean sea level, were measured in situ at three monthly intervals. The base length, along the rostro-carinal axis, was measured to the nearest 0,1 mm, and the data grouped for selected size classes. It is well known that the growth of shore Chthamalids is both irregular and strongly influenced by sea conditions. Barnacles can grow when they are covered by seawater, but sea storms can damage the shell and the basal diameter can sometimes decrease through erosion. Nevertheless, growth patterns can be determined from the measurement of mean length and mean specific growth rate (m.s.g.r. = increase in length per unit per day).

In general the growth of Chthamalids is very slow and continues over several years, while Balanus species, in the Ligurian Sea, may reach maximum size during the first year of life (Relini and Relini Orsi, 1969). The initial growth seems to be more rapid in Euraphia than in Chthamalus, probably because

of the larger size of the former. *Euraphia depressa* can grow under a wider range of shore conditions than *C. stellatus* and *C. montagui*, the latter two species preferring the lower part of the supralittoral zone.

It was observed that both *C. stellatus* at Millport, Scotland (Barnes, 1956) and *E. depressa*, transplanted from the Adriatic to Oban, Scotland (Klepal and Barnes, 1975), exhibited an initial acceleration of growth immediately after being transferred from the shore to a raft (in constant submersion). With acclimatization, however, a return to the slower growth rate soon took place.

Due to a considerable variation in growth from year to year it was not possible to determine a precise growing season comparable to that in *Balanus*.

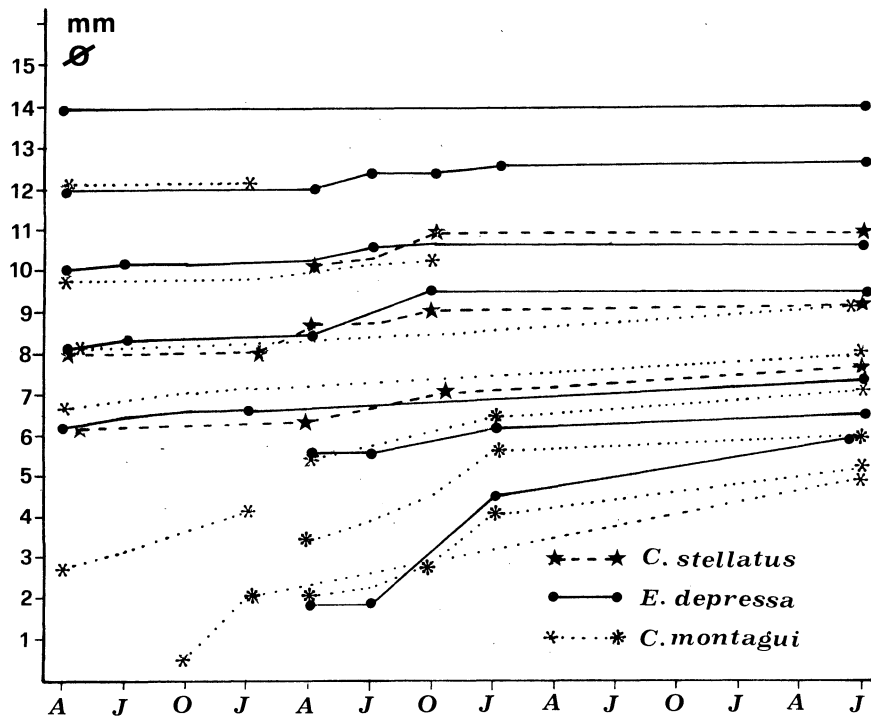


Fig. 1. Some growth curves observed between April 1981 and July 1984.

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