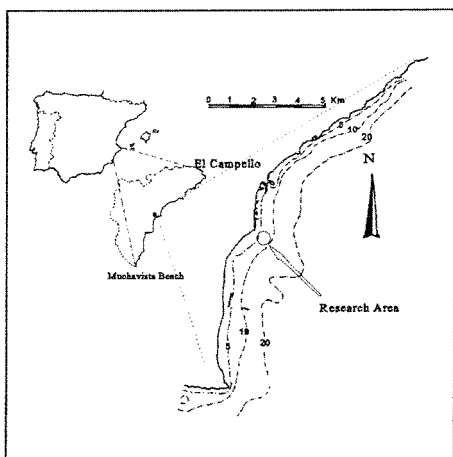


ANNUAL CYCLE OF DECAPOD LARVAE ASSOCIATED WITH A SANDY BEACH IN SOUTHEASTERN OF SPAIN

J.E. GUILLÉN and D. GRAS

Institut d'Ecologia Litoral. C/Benimagrell 5. 03560. El Campello. Alicante, Spain

The research area is placed in Muchavista Beach (El Campello), located on the Southeastern coast of Spain (fig.1). The bionomic composition of this beach mainly consists of sandy bottom biocoenosis and small *Cymodocea nodosa* meadows. The research period was from July 1990 to July 1991. Samples were taken in the neritic zone, between eight and one meter depth, with a planktonic net (250 μ m mesh size), and were quantified with a digital flowmeter. During the sampling period, the



dominant species in decapod meroplankton were zoeas and megalopas from the following groups: (a) *Polybiinae* group (26.04%), (b) *Hippolytidae* family (15.73%), (c) *Portunus latipes* (13.00%), (d) *Philocheas* sp. (11.78%), (e) *Processa* sp. (9.42%), and (f) *Diogenes pugilator* (8.05%).

If we compare the composition of neritic larvae population with that of adult populations during the same period, we can see that the dominant taxa are the same in both cases. Dominant adults in the study area are: *D. pugilator* (40.85%), *Philocheas monacanthus* (25.12%), *Macropodia rostrata* (14.6%), *Hippolyte inermis* (12.07%) and *Liocarcinus vernalis* (2.8%) (GUILLÉN & PÉREZ, 1993).

Due to the fact that it is very difficult to determine larvae, mainly to get species level, there is very little specific literature on the subject. This fact makes it almost impossible to make any relationship between larvae and adults. This problem even gets worse with larvae of *Polybiinae* and *Hippolytidae*, because several species are included in these groups.

The research carried out revealed that the larvae and adult populations found in the area are closely related to each other, such is the case of the larvae that could be determined to species level, viz., *D. pugilator*. In this way, we can consider that many *Philocheas* sp. and *Processa* sp. larvae are the same than the benthic adults found, viz., *P. monacanthus* and *P. modica carolii* respectively. And therefore, larvae considered as *Polybiinae* and *Hippolytidae* may contain a considerable percentage of the main species found in this research, that is, *L. vernalis* and *H. inermis* respectively.

However, the abundance of *P. latipes* larvae contrasts with the lack of adults. This fact could be clarified by means of the bathymetric range of *P. latipes* (0-2 meters). This area was not sampled during the research period. This absence of relationship between larvae and adult populations is also seen in *M. rostrata* of which no larvae were found, and in *Majidae* of which just two specimens were identified as such. When comparing the seasonal composition of decapod larvae, some differences can be pointed out:

Summer: Larvae composition is equally distributed. However, some species can be considered as dominant, such as *Hippolytidae* group (26%), and the *Polybiinae* group, probably *Liocarcinus* sp. (25%), and *P. latipes* (11%). The latter mainly reproduces during the summer period. In this season, we have also found *D. pugilator* (10%), and at percentages lower than 10%: *Calcinus tubularis*, *Porcellana platycheles*, *Pirimela denticulata*, *Processa* sp., *Callianassa* sp., *Ebalia* sp., *Eurynome* sp. and species included as *Caridea*, *Alpheidae*, *Majidae*, and non identified *Brachyura*.

Autumn: *Polybiinae* group still dominates in the samples obtained (37%). But, the variety is lesser than the one observed during the summer. This fact can be due to a *Philocheas* sp. larvae bloom (39%). We have also detected *Hippolytidae* larvae, *P. latipes*, *D. pugilator*, and a group of unidentified *Brachyura* (8%). The remaining taxa are *Dromia personata* and *Alpheidae*, and stand for the 2%.

Winter: Although the number of larvae was low, the samples taken at the end of this period (March) dominated the number of samples taken during the winter. Thus, *Processa* sp. (40%) is the main species, due to the start of its reproductive period. *Processa* sp. is immediately followed by *Philocheas* sp. (17%), by *Polybiinae* group (14%) and by *Galathea intermedia* (8%) that also start their reproductive period. There are seven other taxa with percentages lower than 2%: *Processa* sp., unidentified *Caridea*, *P. platycheles*, *P. denticulata*, *P. latipes*, *Gennadas elegans* and *Majidae*.

Spring: The species with high fecundity gives rise to high larvae percentages, like *Polybiinae* group (31%) and *P. latipes* (43%). At this time of the year, *D. pugilator* starts its reproduction season (10%). We also point out the decrease of larvae of *Processa* sp. and *Philocheas* sp., contrasting with the high percentage observed during the winter period.

Finally, we must underline the high number of larvae from neritic zone species, and the low percentage (0,3%) of oceanic species (only *G. elegans*). Thus, we can say that the dominant taxa found are the same than those of the dominant species from local benthic communities (GUILLÉN & PÉREZ-RUZAFÁ, 1993).

REFERENCES

GUILLÉN, J.E. & PÉREZ-RUZAFÁ, 1993. Composición, estructura y dinámica de poblamientos de crustáceos decápodos asociados a las comunidades arenosas del SE ibérico. *Publ. Espec. Inst. Esp. Oceanogr.* 11: 175-183.

Rapp. Comm. int. Mer Médit., 34, (1995).