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The spider crab *Macropodia rostrata* (Linnaeus, 1761) is a quite common species in the northern Adriatic Sea. However, little has been published on its ecology. There exists only very little information concerning its vertical and horizontal distribution, substrate preference and reproductive period (GRAEFFE, 1902; PESTA, 1918; VATOVA, 1928). The main reason for the lack of information is due to its dispersion in the area. It was sampled constantly, but usually in a small number of specimens so that intensive autecological investigations were not possible. During my studies of decapod fauna in some bays in the Rovinj area (Saline, Leso, Ruja) I sampled a sufficient number of specimens to provide some inferences on species autecology. The crabs were collected monthly by a mušular (local type of dredge), preserved in 4% solution of formal and later studied in the laboratory.

Measurements. Maximum carapace length in the male was 24.5 mm and width 12.6 mm. The female maximum carapace length was 24.9 and width 13.2 mm. The minimum size of ovigerous females was 11.0 mm for carapace length, and 7.4 mm for carapace width.

Sex ratio. Among 196 sampled specimens 104 were males and 92 females. Thus, the sex ratio is 1.12.

Colour. The carapace and pereopods of captured specimens were yellowish-brown, greyish-brown or greenish-brown. The specimens were usually not camouflaged with algae.

Occurrence. In the study area the crabs were variously abundant in season samples. They are frequent from November to April-May, with a maximum abundance during February and March. On the other hand, during summer months they were only rarely sampled, whereas in July and August were completely absent. However, the observations of VATOVA (1928) as well as our investigations show that the crab can be found, in particular during summer, throughout the entire area. From these data it can be concluded that *Macropodia rostrata* performs seasonal inshore-offshore migrations.

Substrate. In the studied localities the crab occurs in sea-grass (*Zostera*, *Cymodocea*) beds together with several algal species. In summer it can be found on various bottom types. VATOVA (1928) established that it prefers the stony bottom covered with algae and avoids soft mud. Being a migratory species it passes various types of substrate.

Depth. In the above-mentioned bays where it was collected the depth varied from about 1.5 to 4 metres, also in very shallow water. VATOVA (1928) reported the species from 10 to 36 metres. In the Adriatic Sea it was recorded from tidal flats down to 190 metres.

Reproduction period. PESTA (1918) reported that ovigerous females can be found from February to June. In the present research the ovigerous females were collected from the beginning of January to the mid of June. The number of larvae hatching has not been established.

Moult period. The moulting period was estimated indirectly according to the hardness of the exoskeleton. Crabs with soft integument have been recorded from November to March, in particular in January, and only once in June.

Foregut fullness. From 142 specimens which foregut (stomach) was examined, 23 foreguts were empty. In the remaining 119 specimens the degree of fullness expressed in percentages is presented in the following table:

Percentage of fullness	No	Percentage of fullness	No
01-10	9	51-60	8
11-20	20	61-70	11
21-30	26	71-80	13
31-40	13	81-90	9
41-50	9	91-100	1

Thus, the majority of specimens at the time of capture were with a low percentage of foregut fullness.

Food composition. The analysis of food types eaten shows that crabs feed on various food items. It is noteworthy that the composition of the foregut contents is very difficult to identify because the content of the foregut is reduced to small fragments by the action of mouth parts and gastric mill. The most frequent component of the foregut content are sand particles (62 times), which in all probability are not used directly as a food. From the matter used for food by the crab for the great part (58 times) it was impossible to identify the origin. It refers to organic remnants including unrecognizable tissue or only amorphous particles of plant or animal origin. Algae (mostly filamentous green and others) were recorded 47 times. Thereafter follow the Crustaceans (mostly Natantia, and rarely also Anomura, Ostracoda, Mysidacea and Amphipoda) found 17 times. According to frequency next are higher plants (in particular marine Potamogetonaceae) 14 times, Polychaeta 12 times and Bivalvia 11 times. Unrecognizable, very finely destructed organic particles like detritus were recorded 11 times. Finally, the remnants of fishes were found only twice. From the mentioned components it is clear that *Macropodia rostrata* is an opportunistic omnivore, which feeds on benthic macroflora and macrofauna, predominantly on sessile or slow-moving organisms and only exceptionally on more active animals such as Crustaceans. This property is in accordance with its slow motion. According to RASMUSSEN (1973) the species feeds also on planktonic organisms. In the present research it was not possible to identify the remnants of holoplanktonic organisms in the stomach.

It is worthy to note that our results mostly agree with those obtained in other areas of distribution (MORI and MANCONI, 1987).

REFERENCES

- GRAEFFE, E., 1902. Uebersicht der Fauna des Golfes von Triest. V. Crustacea. Arbeit. zool. Inst. Univ. Wien., 13 (1): 33-80.
- MORI, M., MANCONI, R., 1987 (1989). Note sulla biologia di *Macropodia rostrata* (L.) del Golfo di Genova (Mar Ligure). Boll. Mus. Ist. Univ. Genova, 53: 57-68.
- PESTA, O., 1918. Die Decapodenfauna der Adria. Versuch einer Monographie. Deuticke, Leipzig und Wien, 500 p.
- RASMUSSEN, E., 1973. Systematics and ecology of the Isefjord marine fauna (Denmark). Ophelia, 11: 1-507.
- VATOVA, A., 1928. Compendio della flora e fauna del Mare Adriatico presso Rovigno. Mem. R. Com. talassogr. ital., 143: 1-614.