

**Note on the biology of *Carcinus aestuarii* (Crustacea, Decapoda, Brachyura)
in the Rovinj area**

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The Mediterranean shore crab *Carcinus aestuarii* NARDO, 1847 is fairly scarce in the Rovinj area, and only sparse data on its ecology in the area exist (FORSTNER, 1967). Studies of the species in the area had been performed in 1976-1978 at shore in Ruja Cove near the hospital on the Cape Muca (Mucia) (present results), and later in the 1981-1991 period in seagrass beds of Leso (Lesso), Ruja and Saline coves (STEVIC, in press).

Locality and collecting. In the Ruja Cove the shore crabs were sampled monthly by hand in the intertidal zone during the low tide. 340 specimens were collected in this locality on the following dates:

| Date | Males | Females | Date | Males | Females |
|--------------|-------|---------|--------------|-------|---------|
| 09. 11. 1976 | 10 | 06 | 19. 07. 1977 | 17 | 08 |
| 21. 12. 1976 | 02 | 04 | 17. 08. 1977 | 32 | 04 |
| 17. 03. 1977 | 11 | 07 | 13. 09. 1977 | 20 | 19 |
| 21. 04. 1977 | 17 | 23 | 27. 09. 1977 | 18 | 13 |
| 06. 05. 1977 | 15 | 11 | 26. 10. 1977 | 07 | 11 |
| 24. 05. 1977 | 13 | 23 | 27. 12. 1977 | 07 | 01 |
| 21. 06. 1977 | 12 | 18 | 06. 04. 1978 | 06 | 05 |

Sex ratio and laterality. Among 340 specimens 187 were males and 153 females. Thus sex ratio is 1,22. The majority of specimens had the right cheliped as the major one (149 males and 104 females). 26 specimens had left cheliped as the major one (12 males and 14 females), whilst only in one case the laterality was indistinct.

Population changes. Specimen abundances varied during the year. Crabs were more frequently observed from April to October, while from October to second part of April the crabs were rare or nearly absent. During the colder period (October-April) an increased number of crabs in the seagrass beds was not observed (STEVIC, in press), and there was also no indication of their migration into the deeper sublittoral. The crabs were, however, observed to enter the holes in the substrate or galleries (burrowed by themselves or by thalassinids?), and, moreover, digging into the substrate.

Size. Carapace width in males varied from 7,9-48,7 mm, and in females from 11,2-42,8 mm. The Rovinj area shore crabs are relatively smaller in comparison with other Adriatic areas e.g. Venice Lagoon, or mouth of Krka River in Dalmatia (unpublished data).

Habitat. The shore crab prefers a soft sedimentary substrate (FORSTNER, 1967), almost muddy bottom and seagrass beds, in particular where the water is more or less brackish. It occurs as in the intertidal zone, usually under the boulders, as in the shallow sublittoral waters. It is observed, quite unexpectedly, that greater specimens, when emerged during low tide, are nearer to low tide mark, whereas the smaller ones are nearer to the upper tide mark.

Reproductive cycle. Since the crabs are relative rare, usually concentrated in some limited areas, it was impossible to follow their reproductive cycle in its entirety. The ovigerous females were rarely recorded during February, March and September. The copulation occurred in April, when the couples of male and female were observed. From April to May the specimens were often gathered in groups.

Molting period. The specimens with soft integument i.e. immediately after molting were observed relatively often, but usually only one specimens per sample. Only on 21 April 1977 were found 11 moulted (out of 30) specimens, and on 17 August 1977 were found 4 (out of 34) specimens.

Foregut fullness. The foregut (stomach) analysis was performed on 280 specimens, 123 foreguts resulted empty. In the remaining 157 specimens the percentage of foregut fullness is presented in the next table:

| Percentage of fullness | No | Percentage of fullness | No |
|------------------------|----|------------------------|----|
| 01 - 10 | 47 | 51 - 60 | 5 |
| 11 - 20 | 39 | 61 - 70 | 6 |
| 21 - 30 | 16 | 71 - 80 | 7 |
| 31 - 40 | 12 | 81 - 90 | 13 |
| 41 - 50 | 10 | 91 - 100 | 2 |

Food composition. The analysis of food composition found in the foregut shows that the Rovinj area crab feeds on various food items. The most frequent component of the foregut content was an amorphous organic matter (66 times). Among recognizable parts, bivalve mollusks (almost mussels) were observed 46 times. Polychaetes follow with 32 times. The next group were the decapod crustaceans, predominantly crabs (19). Plant remnants were more rarely identified, various algae (14), whereas higher (vascular) plants were found only once. Gastropods were recorded 11, and polyplacophors 6 times. Among small crustaceans amphipods were found 9 and isopods only three times. Detritus was found 10 times, sand particles 14 times and small stone particles 3 times. These data show that this species is an opportunistic omnivore, that feeds predominantly on sessile and slowly moving animals, whereas quickly moving animals are rarely eaten.

REFERENCES

- FORSTNER H., 1967.- Zur Kenntnis der Verteilung der Brachyura Brachyrhyncha im Litoral Istriens. *Thalassia Jugosl.* 3:35-42
 STEVIC Z.- Decapod fauna of seagrass beds in the Rovinj area. *Acta Adriat.* (in press).

