# On the feeding of Serranus hepatus (L.) and Cepola macrophthalma (L.) postlarvae in the central Adriatic

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Summary

The food composition of two species of postlarvae have been analysed, as well as its dependance on postlarvae body length. The coefficients of similarity of the food were calculated.

Résumé

On a analysé la composition de la nourriture des postlarves des deux espèces qui apparaissent simultanément dans le plancton ainsi que son changement en relation avec la longueur du corp. On a calculé aussi les coefficients des ressemblences de la nourriture.

Stomach contents of the 106 postlarvae of Serranus hepatus (L.) and Cepola macrophthalma (L.) were analysed. These two species occurred in plankton almost simultaneously (May-September, i.e. May-November). Material was collected from four stations on the profile Bay of Kaštela - Stončica in the central Adriatic. The length ranged from 1.99-6.75 mm LS (S. hepatus) and 2.06-6.23 mm LS (C.macrophthalma).

Following results were obtained:

- Both species are active feeders; the gill rakers were found in none.

- Developmental stages of planktonic crustaceans, mainly copepods, prevailed in the diet of both species. Eggs and nauplii occurred in the food of both species postlarvae up to 5 mm long. From about 3 mm on, both species ordinarily start to feed on copepodites, which seem to be food prefered by older postlarvae. The other organisms we were able to identify (Doliolum larvae and phytoplankton in S.hepatus, Tintinnides, Lepas larvae, Phyllopoda, Oikopleura larvae in C.macrophthalma) occurred predominantly in smaller postlarvae in less percentage. The diversity of food seemsto decrease with length increase.

- The average number of objects in stomach of S.hepatus postlarvae was 1-2, and that in C.macrophtahalma 2-3.

- Linear relationship was found between body length and mouth width (r= 0.98, P 0.01 for both species). Comparison of regression lines indicates that the both species postlarvae of equal length have almost equal mouth width. It has been obtained that the size of the objects the postlarvae feed on depends on their mouth width (S. hepatus - r= 0,99, P 0.01; C. macrophtahalma - r= 0,97, P 0.01). The regression lines comparison, however, indicates that the C. macrophthalma postlarvae with the mouth width equal (i.e. body length) to that of S. hepatus feed on somewhat smaller organisms. They feed on organisms taken by the 0.5 - 1 mm smaller postlarvae of S. hepatus, So, the coefficients of food similarity, for the respective length groups of postlarvae, were calculated (S c h o r y g i n, after I v l e v, 1964) (Table 1).

Table 1. Coefficients of food similarity of S.hepatus and C. macrophthalma. (Second number in lenght groups refers to C.macrophthalma)

| Length group | 2.0-2.0 | 3.0-3.5 | 3.5-4.5 | 5.0-6.0 |
|---|---|---|---|---|
| fc | 33.3 | 36.5 | 15.4 | 66.7 |

According to the food similarity coefficients distribution it could be concluded that competition for food probably increases with the length increase. However, it has to be taken into account that nauplii and copepodites, which seem to be main food, are likely to belong to the large number of different species. Taking together this fact and that S. hepatus postlarvae of all sizes reach their maximum in plankton in the period June-September and C.macrophthalma in June and September, we may presume that there is no keen competition between them.

References

I v l e v, V.S. 1964. Experimental ecology of the feeding of fishes. Yale Univ. Press, 1-302.