

SIGNIFICANCE OF PHYTOPLANKTON FRACTION IN THE NUTRITION OF THE COPEPODS
(BAY OF TRIESTE)

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Paper reports the first results on copepod nutrition in the Bay of Trieste. The data obtained are compared with the earlier studies of copepod diet in some other parts of the Adriatic Sea and observed with respect to differences in phytoplankton composition.

L'article fournit les résultats d'études sur les relations trophiques des Copepodes du Golfe de Trieste. Les résultats obtenus sont comparés avec des données antérieures sur la nutrition de ce groupe d'organismes de diverses parties de l'Adriatique en se référant aux différences structurelles du phytoplancton.

The samples of phyto and zooplankton, which have been collected during the year 1980 in the Bay of Trieste, were used for the analysis of the nutrition of the dominant copepods from that area.

The investigations of the copepods nutrition have been started in the year 1974, and they covered the Bay of Kaštela (Homen, B. and D. Regner 1977; Regner, D., 1979), channels and open waters of the central Adriatic (Marasović, I. and D. Regner, 1979), almost entire eastern part of the northern and central Adriatic (Regner, D. and I. Marasović, 1983), as well as the part of the southern Adriatic (Pucher-Petković, T., I. Marasović and D. Regner, 1983). So, we tried to compare these most recent data from the Bay of Trieste with the preceding results obtained from the similar areas of the Adriatic coast.

The aim of this paper is to find out how much the differences of the gut contents of copepods, which were found in the different areas of the Adriatic, depend on the composition of phytoplankton communities.

Dominant species of copepods in the Bay of Trieste are *Acartia clausi*, *Temora stylifera*, *Temora longicornis*, *Paracalanus parvus*, *Centropages kroyeri*. Their gut contents were analysed (Tab.1).

From the table 1. it may be seen that the dominant species of phytoplankton were mostly found in the gut contents of copepods. It can be pointed out that during the summer, when the group of Dinoflagellate is the best represented in the sea, their participation in the food composition of copepods also increases. So, even these most recent data confirm our earlier opinion that the composition of food in the guts of copepods reflects, almost entirely, the composition of phytoplankton community in their environment.

TAB. 1. Dominant species of phytoplankton in the sea in relation to composition of phytoplankton in copepods gut contents

Year 1980	Dominant species of phytoplankton in the sea	Composition of phytoplankton in copepods gut contents
March	<i>Rhizosolenia stolterfothii</i> ⁺	<i>Rhizosolenia stolterfothii</i> <i>Thalassiothrix frauenfeldii</i>
July	<i>Rhizosolenia alata</i> f. <i>gracillima</i> <i>Rhizosolenia fragilissima</i> <i>Nitzschia seriata</i> +	<i>Rhizosolenia alata</i> f. <i>gracillima</i> <i>Nitzschia seriata</i> <i>Prorocentrum micans</i> <i>Phalacroma rotundatum</i> <i>Ceratium</i> sp. (one part of cell) <i>Syracosphaera</i> sp.
August	<i>Rhizosolenia alata</i> f. <i>gracillima</i> ⁺ <i>Leptocylindrus adriaticus</i> <i>Nitzschia seriata</i> <i>Prorocentrum schilleri</i>	<i>Rhizosolenia alata</i> f. <i>gracillima</i> (one part of cell) <i>Coscinodiscus</i> sp. <i>Scripsiella trochoidea</i> <i>Prorocentrum schilleri</i> <i>Syracosphaera</i> spp. (big species)
September	<i>Thalassiosira rotula</i> <i>Chaetoceros curvisetus</i> +	<i>Chaetoceros curvisetus</i> (chains)
October	<i>Thalassiothrix mediterranea</i> <i>Chaetoceros curvisetus</i> +	<i>Thalassiothrix mediterranea</i> (one part of cell)
November	<i>Syracosphaera</i> spp. + <i>Calyptosphaera</i> spp. + <i>Thalassiothrix mediterranea</i>	<i>Chaetoceros curvisetus</i> (chain of 10 cells). <i>Thalassiothrix mediterranea</i> (one part of cell)

The results obtained from the Bay of Trieste, as well as those which have been obtained from the similar areas in the Adriatic, such as the bays of Kaštela and Mali Ston show that the phytoplankton species which are most frequently, found in the guts of copepods belong to the

large sized species or the smaller ones connected in chains (*Nitzschia seriata*, *Chaetoceros* spp. and *Skeletonema costatum*). That confirmed our earlier observations that copepods prefer larger phytoplankton cells. Some other authors, after investigations of the nutrition of copepods in the experimental conditions, came to the similar conclusions.

Summing all results obtained from the eastern Adriatic it can be concluded that copepods select food actively, but rather the size than the species of phytoplankton.

The fact that in eutrophicated areas, like in bays, where the food is abundant in the guts of copepods almost only large-sized cells can be found, leads to this conclusion. The large cells are dominant in the gut contents even in the months when the small size species are dominant (November, 1980 Tab. 1). The smaller species of phytoplankton can be found only in the guts of copepods from the open waters, where the quantities of food are scarce. It can be supposed that in these conditions copepods don't select food actively.

