

FEEDING RHYTHMS AND TROPHIC ORGANIZATION OF
A POPULATION OF PELAGIC CRUSTACEA (EUPHAUSIACEA)

(Abstract)

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The trophic behaviour of almost all the euphausiid species of the tropical Pacific has been studied; 18620 individuals have been dissected. The feeding rhythm is typical for each species, and a given species exhibits the same behaviour in different regions. As a rule, species belonging to the same genus have the same feeding type : nutrition most active by night in Euphausia, permanent in Thysanopoda, mostly restricted to light hours in Stylocheiron, principally from noon to midnight in Nematoscelis and Nematobrachion. The food requirements are fulfilled through an extended feeding period in Euphausia and Thysanopoda, and through a large stomach content in Nematoscelis and Nematobrachion.

The daily vertical migration goes with continuous feeding : in most cases, the feeding rhythms are weak or non-existent in migrant species, widest in non-migrant species. Nevertheless, the vertical migration does not appear to provide any "bonus" to species which perform it. Assuming that the duration of the stomachal transit is the same for all the species (a speculative proposition), one has calculated the amount of food eaten by each species in the different bathymetric levels by day and night. It has been found that the efficiency (total biomass of species / food consumed during 24 hours, i.e. biomass available for the upper link / biomass eaten daily at the expense of the lower link) was 4 times better in non-migrating species than in migrating ones.