

RELATIONSHIPS BETWEEN VERTICAL DISTRIBUTION
AND DIET IN FOUR EUPHAUSIID SPECIES

A THESIS SUBMITTED TO THE GRADUATE DIVISION OF THE
UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

IN OCEANOGRAPHY

MAY 1976

By

Vernon J. H. Hu

Thesis Committee:

Jed Hirota, Chairman
Thomas A. Clarke
Richard E. Young

ABSTRACT

The degree of overlap in the day and night vertical distribution of a species was found to be inversely correlated with increased stomach weight at night; species with a small amount of depth distributional overlap (i.e. large diel vertical migration) exhibited a marked increase in stomach weight at night. Thysanopoda astylata (4% overlap) and T. monacantha (13% overlap) exhibited both strong vertical migration and increased median stomach weight during the night. In contrast, T. pectinata (29% overlap), which was a moderate vertical migrator, exhibited a constant median stomach weight throughout the day and night while Nematobranchion sexspinosus (56% overlap), a weak or non-migrator, exhibited increased median stomach weight during the day. Increases in stomach weight at night were accompanied by an increase in fluorescence and the amount of phytoplankton remains found in the stomach, but neither an increase in phytoplankton remains nor fluorescence was found in the species which did not show increased stomach weight at night.