

MONTHLY FLUCTUATIONS IN THE POPULATION DENSITY  
AND VERTICAL DISTRIBUTION OF AN INTERTIDAL MEIOFAUNA COMMUNITY  
IN A TROPICAL MUDDY SUBSTRATE

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A Thesis

Presented to

the Faculty of the Graduate School  
University of San Carlos

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In Partial Fulfillment

of the Requirements for the Degree  
Master of Science in Biology

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by

Helen Jamboy Vicente

March 1978

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APPROVAL SHEET

This thesis entitled "MONTHLY FLUCTUATIONS IN THE POPULATION DENSITY AND VERTICAL DISTRIBUTION OF AN INTERTIDAL MEIOFAUNA COMMUNITY IN A TROPICAL MUDDY SUBSTRATE" prepared and submitted by Helen Jamboy Vicente in partial fulfillment of the requirements for the degree of M.S. in Biology has been examined and is recommended for acceptance and approval for ORAL EXAMINATION.

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## ACKNOWLEDGMENT

I am indebted to my adviser, Dr. Jesus V. Juario, who provided both technical and material assistance throughout the duration of this study and made valuable suggestions on the manuscript.

I owe gratitude to my colleagues Miss Marietta R. Natividad and Miss Paciencia C. Sia for the fruitful discussions with them who provided feedbacks on the various phases of my work; to Mr. Antonio Tambuli, Mr. Vicente Rosaroso, and Mr. Danilo Atienza Vicente for the assistance they extended during the field work phase of the study and without whom I should have been so much burdened physically.

I am extending my special thanks and best regards to the indefatigable Fr. Enrique Shoenig and to many friends in the Biology Department, University of San Carlos such as Miss Elena Ravoy, Miss Joy Necario, and Mrs. Corazon Tan who were always ready to lend a hand in the laboratory work and in the typing of the drafts needed for this paper; to my unforgettable friends: Nang Inday, Tootsie, Tivo and Edith.

Finally, it is my distinct privilege to thank the Mindanao State University, specifically its Faculty Development Program, for having financed my fellowship grant at the University of San Carlos, Cebu City.

HELEN JAMBOY VICENTE

## ABSTRACT

A tropical meiofauna community was studied over a 6-month period on a muddy substrate in Silut Bay, Liloan, Cebu. The sediment consists mainly of silty-clay with a median diameter of less than 50  $\mu\text{m}$ . The most numerous taxonomic groups were the nematodes, polychaetes, copepods, and turbellarians. Decapod larvae, kinorhynchs, ostracods, bivalve larvae and other unidentified meiofauna occurred in smaller numbers. Total meiofauna individuals averaged from 1818 to 3221  $10\text{ cm}^{-2}$  and the corresponding biomass from 1716.77 to 3674.14  $\mu\text{g DW } 10\text{ cm}^{-2}$ . The nematode was the most abundant of all the meiofauna groups which made up 70% of the mean total meiofauna population. The other taxa mentioned comprised the remaining 30%. Highest significant peak in abundance ( $P < 0.05$ ) of the total meiofauna was observed in July and the lowest in August. Nematodes comprising the most important group, attained significant peaks in abundance in July and October ( $P < 0.05$ ). Monthly fluctuations in the total meiofauna mean densities as well as the various meiofauna groups, except the turbellarians, are highly significant ( $P \ll 0.05$ ). Vertical distribution of the meiofauna varies with depth, with 96.31% of the total fauna concentrated in the upper 4 cm of the sediment. Of the parameters studied, benthic diatom standing stock, organic carbon content and interstitial water content appeared to be the chief factors influencing meiofauna density and vertical distribution. Possible prey-predator relationships exist among some meiofauna groups as well as partial competitive interactions.

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