

DISTRIBUTION OF MARINE BENTHIC AMPHIPODS OFF PHUKET ISLAND, WITH EMPHASIS ON TIN MINING AND A MODEL OF SPECIES-INDIVIDUAL RELATIONSHIPS*

By SOMCHAI BUSSARAWICH, A. NATEEWATHANA and J. HYLLEBERG**

Phuket Marine Biological Center, Phuket, Thailand

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ABSTRACT

Grain size distribution of sediments, species composition, distribution and density of 30 species of amphipods were studied along the west coast of Phuket Island, the Andaman Sea, southern Thailand. Bimonthly bottom samples were obtained during one year with a 0.1 m² Smith McIntyre grab at 15 stations, ranging in depth from 10-30 m.

A modification of traditional sieving and searching procedures yielded 2-3 times higher densities of amphipods per unit area. Contrary to previous findings, amphipods were prominent members of the offshore benthic communities.

The distribution of the amphipods is discussed in relation to concentrations of silt-clay, heterogeneity of sediments, and other groups of benthos at the 15 stations. It is concluded that amphipods are good indicator organisms with respect to silt-clay conditions of the sea bed.

A model is proposed for the relationship between total density of species and total density of individuals per station. The model is based on a truncate normal curve distribution and divided into four areas of amphipod occurrence termed inadequate, suboptimal, acceptable, and optimal. Lines of demarcation of these four areas is based on a division of the density of individuals into geometric classes.