

TEMPORAL CHANGES IN SEDIMENT CHARACTERISTICS ON THE WEST COAST OF PHUKET ISLAND*

BY JORGEN HYLLEBERG¹, ANUWAT NATEEWATHANA and BAMROONGSAK CHATANANTNAWEJ

Phuket Marine Biological Center, P.O. Box 60, Phuket 83000, THAILAND

CONTENTS

	Page
Abstract	1
I. Introduction	2
II. Materials and Methods	2
(a) The study area	2
(b) Methods	3
(c) Treatment of data.....	4
III. Results	5
(a) The measured parameters	5
(i) Median grain size	5
(ii) Quartile deviation	5
(iii) Silt-Clay of sediments	6
(iv) Suspended silt-clay particles	6
(v) Wind force and pattern	7
(vi) Relationship between mean and maximum wind velocities	8
(b) The overall trends	8
(i) Sediment characteristics according to depth and locality	8
(ii) Suspended solids versus concentrations in the bottom	8
IV. Discussion	13
(a) Biological effects of silt-clay particles	13
(b) Dynamics of silt-clay particles	13
(c) Monsoon associated effects	14
V. Conclusions	15
Acknowledgements	15
References	15

ABSTRACT

Based on bimonthly samples, changes in bottom sediment characteristics have been estimated during a three-year study on the west coast of Phuket Island, Andaman Sea. A total of 540 samples, covering 54 m² sea bed, have been analysed and provide the first long-term study of sea beds in Thailand. The results obtained at 15 stations, ranging in depth from 10 to 30 m., show significant between-year variations in silt-clay contents of the sediments. It is concluded that fine grained deposits increase on the bottom during the period of the NE monsoon and that this material is removed from the area during the SW monsoon. Hence, the study indicates that the effect of offshore tin mining on sediment granulometrics is local and reversible since there is no build-up of fine grained sediments. The observed pattern of temporal changes is discussed in relation to turbulent currents, wind force, and direction.

The study indicates a positive relationship between the concentration of silt-clay particles in bottom sediments and the concentration of suspended solids in sea water.

* Paper presented at the 15th Pacific Science Conference, New Zealand, February 1-11, 1983.

Present address: 1. Department of Ecology and Genetics, University of Aarhus, Ny Munksgade, Building 550, DK-8000 Aarhus C, Denmark.