

LONGSHORE VARIATION OF BEACH SAND IN RELATION TO LITTORAL DRIFT DIRECTION ALONG THE KUALA TERENGGANU COAST

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A knowledge of variations in littoral drift directions and beach sediments is important for making decisions in coastal zone management and coastal engineering, especially in the construction of ports and breakwaters. This paper discusses a systematic analysis of variations in the grain sizes of beach sediments along the north-western coast of Terengganu.

The study area is located close to the town of Kuala Terengganu and extends from the beach at Tanjung Gelang to Kuala Ibai. For the study, 8 sampling stations were chosen; stations 1, 2 and 3 located on the south-east side of the Terengganu river mouth, and stations 4, 5, 6, 7 and 8 located on the other side. Beach profiles were measured 3 days a month, using the level and staff method, while the beach sands were sampled with plastic corers. Some 50 to 100 gm of each sample was used for textural analysis according to the wet sieving and pipette method described by Buchanan (1971). The coarse fraction comprising particles with a diameter of greater than 4 phi were analysed using dry sieving techniques.

From the results, several statistical parameters were calculated according to the formulae of Folk and Ward (1957). Waves and longshore currents were observed using the Littoral Environmental Observation Method. The beach sediments of the study area are exclusively sandy with median diameters between fine and medium grained sand. The mean sand grain size, as well as sorting and skewness values show a spatial and temporal variation throughout the entire study area. The mean grain size generally decreases along the direction of the littoral drift with increasing distance from the sediment source. The beach morphology varies throughout the area, with coarser beach sediments causing a more gentle fore-shore due to less erosion.
