SHALLOW - WATER CARBONATE FACIES ON THE CONTINENTAL SHELF BETWEEN KALPITIYA AND UDAPPUWA

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The present study was initiated to quantitatively delineate carbonate facies on the continental shelf between Kalpitiya and Udappuwa and to delincate the factors contributing to the origin and distribution of the various constituents.

Representative subsamples of 23 sediment samples collected from the area were studied under the binocular microscope. A point-count of each sample was made to determine the constituent composition of separate sample fractions from 4mm to 0.63 mm. Analysis of accumulated data on statistical parameters that summarize different aspects of particle-size distribution show that the size of material on the continental shelf off Kalpitiya - Udappuwa is determined not only by the presence of transported material, but also by in situ skeletal debris and in situ changes in original particle size.

The study of constituent particle composition indicates that the shelf off Kalpitiya consists of four shallow-water carbonate facies (coralline algae, mollusca foraminifera and mollusc-barnacle fragments), while the shelf off Udappuwa is covered with two carbonate facies (mollusc-barnacle fragments and foraminifera). The foraminifera, barnacle fragment and molluscs off Kalpitiya are found to concentrate in the coarse (1 - 2 mm) fraction of the sample, whereas those off Udappuwa have the highest concentration of forminifera and mollusc barnacle fragments in the finer (< 0.5mm) fractions. Another noticeable feature is the relatively low abundance of planktonic species of forminifera in relation to the high abundance of benthonic forminifera in these areas. The coarse fraction of the sediments contain the benthic forminifera 'Amphistigina', 'Gyrodina' and 'Siphonina' while the fine fraction consists of the benthonic species 'Bathysiphone' and 'Textularia'.

The low diversity of species may be due to the high wave and current activity in the area where salinity, temperature and turbidity conditions are unstable throughout the year. Studies also indicate that shelf marginal reef progradation and resedimentation processes play the major role in determining the facies sequences.