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The Kalametiya and the Lunama lagoons are attractive coastal geomorphological systems in the southeastern coast of Sri Lanka. An attempt is made to understand the late Holocene history of these lagoonal systems on the basis of geomorphological mapping aided by an aerospace survey, laboratory analysis of materials and statistical treatment of the laboratory data.

Outcrops of Precambrian and Palaeozoic rocks have divided the coastline at an early stage into embayed compartments separated by promontories. These early promontories demarcated the "former Kalametiya bay" and the "former Lunama bay". The beaches of the Kalametiya bay are 5m above present sea level and thus they were formed when the sea level was 5m higher. The next evolutionary stage of the system was characterized by the formation of a chain of barriers. It was a result of substantial sediment supply to the beaches and emergence of the land through a lowering of the sea level from 5 to 1m. Due to the barrier formation, the sea beaches situated along the headlands were consolidated. Lagoonal beaches, then formed in front of the bay beaches.

Subsequent to barrier formation, the materials of the barriers were affected by wind action. Dunes were thus formed. This dune forming stage suggests a change in the prevailing wind direction.

The recent stage of the systems is characterized by the formation of moderately straight sandy beaches controlled by two headlands which are rather far apart. The ultimate result of this development is the conversion of a strongly indented coastline into a smooth and rather straight beach.