

**Seasonal dynamics of a vegetated reef island on the east coast of north Borneo:
Mabul island, Sabah, Malaysia**

ABSTRACT

The vulnerability of reef islands is often assessed by measuring changes in shoreline positions over time. This study assesses shoreline changes of Mabul Island due to monsoonal oscillations by adopting the base of beach (BB) as shoreline proxy. The Digital Shoreline Analysis System (DSAS) (ArcGIS 10.2) method was applied to calculate shoreline changes for three consecutive high resolution satellite images representing transition from Southwest monsoon to Northeast monsoon and back to Southwest monsoon. Results revealed by the BB shoreline indicated that the sandy beaches of Mabul Island accreted in size during the Northeast monsoon and conversely displayed an erosive state during the Southwest monsoon. Findings of this study imply that reef islands base of beach shorelines are dynamic features which vary spatially and temporally. In addition, the base of beach is a suitable indicator for assessing short term shoreline changes for sandy reef islands except for areas where building infrastructures are present on the shoreline.