

Coastal change detection using GIS in Setiu Lagoon, Terengganu, Malaysia.

ABSTRACT

The Peninsular Malaysia coastline, which is covered about 4,800 km in length, is rich by coastal resources and has an abundance of natural biodiversity. The development which occurred along the coastal lines have led to the host of problems such as increased erosion, siltation, and loss of coastal resources and the destruction of the fragile marine habitat. In order to conserve the depleting coastal resources, the changes due to development and associated activities must be monitored. This paper was intended to detect changes of coastal area in Setiu Lagoon, Terengganu and to provide future database in coastal management studies. Analysis was carried out using GIS platform and the results of coastal change were disseminated in digital format which can be used for conducting further geographic analysis. The results showed that from 1980 to 2004, the movement of sand spit was about 7.0 m/yr for shoreline length and 0.8 m/yr for the small islands. This study emphasized that the critical areas were found around the estuary and islands were eroded slowly due to the waves, current and dominant winds actions during monsoon loaded. The other factor was due to depletion of the mangrove forest areas. It is therefore necessary to monitor coastal zone changes because the importance of environmental parameter, storm impact prevention and human disturbance.

Keyword: GIS; Coastal; Change detection; Erosion; Setiu Lagoon.