

Environmental assessment of coastal degradation of Southern Corniche of Jeddah coast using remote sensing and GIS

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During the last three decades, human interference with the environment has changed the outlook of the Southern Corniche of Jeddah (SCJ). Satellite images acquired from the Enhanced Thematic Mapper Plus (ETM+) 2010, Thematic Mapper (TM) 1990, Multi-spectral scanner (MSS) 1973 and Ikonos image of 2009 were used to detect of the nearshore zone degradation and to assess environmental changes induced by human activities. The visual interpretation of these images revealed a great change in the shoreline and in coral reef habitats. The reef flats were filled and the coastal land was cut for the purpose of expanding the seaport platforms and constructing of coastal road. This study revealed changes in mangroves as indicated by the loss of the mangrove area and a decline in the rate of growth of mangrove trees (*Avicennia marina*) during the past of 20 years due to anthropogenic activities and high salinity. The present study shows that satellite remote sensing (RM) integrated with geographic information system (GIS) are very effective tools for coastal changes detection. The high-resolution satellite data such as Landsat ETM+ 2010, TM 1990, MMS 1973 and IKONUS 2009 data are excellent source to provide information accurately.

Keywords: Remote Sensing, GIS, Environmental degradation