

# **IDENTIFICATION OF SHORELINE EROSION ALONG TANJUNG TOKONG, PENANG**

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Thesis submitted in fulfillment  
of the requirements for the degree of  
Bachelor of Surveying Science and Geomatics

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## AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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## **ABTRACT**

This study was intended about the shoreline detection and changes along Tanjung Tokong shoreline in Penang using Landsat satellite imagery and produces map of shoreline. In this project, there are two images that are used in different years. The image is Landsat 5 TM and Landsat 8 TIRS/OLI year 2011, 2015 and 2018. In this study, the step compiled and used to produce the maps of shoreline changes are based on adapted from sources journal. To perform these steps, the software ENVI, ERDAS Imagine and ArcGIS was used. The comparisons of shoreline changes for three difference years are based on the length and position of shoreline. this project area was select based on issues were occur after tsunami disaster. This issues were stated by Mohamed (2018) where there have changes of shoreline either the length become shorter or become longer. There are two main processing involved in this project which is Normalized Difference Water Index (NDWI) and image classification. NDWI method was used for first objective which extraction of shoreline segment while for the image classification was the one of the method in second objective. In second objective, this method was to classified the feature on the image in several types of land use which is the area of water bodies, sediment and shoreline, vegetation, forest and residential area. The final of this project is to show the changes of shoreline either in pattern, position and length. This changes will be identified either there are erosions or reclaims along Tanjung Tokong shoreline.

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