

UNIVERSITI TEKNOLOGI MARA

**COMPARISON STUDY OF RUGOSITY MODELLING
RESULTING FROM FLEDERMAUS, BENTHIC TERRAIN
MODELER AND CORAL DETECTION MODEL DERIVED
FROM ALGORITHM TOPOGRAPHIC POSITION INDEX**

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Thesis submitted in fulfillment

Of the requirements for degree of

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AUTHOR'S DECLARATION

I declare that the work in this dissertation 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 topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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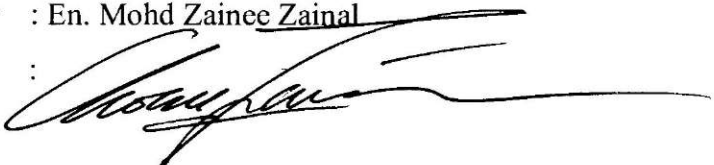
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ABSTRACT

Sea coral reefs are very important and crucial for marine life especially fish as it is their habitat and source of food. The main purpose of this study is to create the automated tool in ArcGIS toolbox which is to identify the coral reefs around Pulau Bidong, Terengganu. The data from multibeam will be processed by insert value the sound velocity profile (SVP), insert tide value and patch test calibration value filtered using QPS Qimera, then get the bathymetry profile. While QPS Fledermaus that will produce by compute rugosity. Rugosity is to differentiate between corals and sand. All of these data then will be exported into ArcGIS for producing Digital Elevation Model (DEM) and make a results and analysis based on QPS Fledermaus model, BTM-Terrain Ruggedness (VRM) model and Coral Detection model. So, the result of this research shows on all three model which is profile detect the rugosity for the area to identify coral reefs. It is show the results given from QPS Fledermaus and Coral Detection of the accuracy is 55% similar of coral representation, and also the BTM-Terrain Ruggedness (VRM) and Coral Detection of the accuracy is similar 51% of coral representation. The total area covered by coral reefs based on QPS Fledermaus is 2685.208 m² and for BTM-Terrain Ruggedness (VRM) is 15914.485 m². So that, the Coral Detection Model can identify more coral reefs area that covered is 19033.338 m². As a conclusion, Coral Detection tool derived from Topographic Position Index can be used based on similar coral representation to detect coral reefs because the result of shape that show very dense and clear.

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