UNIVERSITI TEKNOLOGI MARA

EFFECT OF TIDAL REGIME, RELATIVE SEA LEVEL AND WIND INTENSITY ON CHANGES OF MANGROVE AREA

NOORITA BINTI SAHRIMAN

PhD

August 2021

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 acknowledges as referenced works. This thesis has not been submitted to any other academic instituition or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Noorita Binti Sahriman
Student I.D. No	:	2015485476
Programme	:	Doctor of Philosophy (Build Environment) – AP991
Faculty	:	Architecture, Planning and Surveying
Thesis Title	:	Effect Of Tidal Regime, Relative Sea Level And Wind Intensity On Changes Of Mangrove Area
Signature of Student	:	…………………………………….
Date	:	August 2021

ABSTRACT

Mangrove are very well known for its contribution to the wildlife, human, and ecosystem. Mangrove provide habitat, food, medicine and building material makes it so valuable and important. However, despite all the benefits they offer, mangrove are being threatened all over the world. Mangrove loss and deforestation has become a worldwide issue. The destruction and replacement of mangrove forests spread widely for various reasons. This study focuses on determining the effect of environmental parameters toward mangrove areas. Three indicators were taken as a primary parameter in this study. Those parameters were tidal regime, wind intensity, and relative sea level. These three information has been obtained from Forest Research Institute Malaysia (FRIM), Forestry Department Peninsular Malaysia (FDIM) and Malaysian Meteorological Department (MMD) beside all the research from previous study. The study area for this research covered the east and west coast of Malaysia. For the east coast is Chendering in Terengganu while for the west coast is Kuala Perlis in Perlis. The detection of mangrove areas was performed by using Landsat 5 TM and Landsat 8 OLI satellite imagery in PCI Geomatica software. The process of determining the mangrove area was done using supervised classification with maximum likelihood classifier and supported with site verification. The area covered is 5km x 5km per image or 25 km^2 with the range period of ten years from 2005 till 2015 and the satellite images selected were in the year of 2005, 2010 and 2015. The change of mangrove areas was determined. Chendering mangrove areas increased 3,243 m^2 during 2005 to 2015. While in Kuala Perlis mangrove increased 1,892 m^2 during the same period. The relationship between tidal regime, relative sea level and wind intensity were analysed based on the result from mangrove area changes that has been obtained through supervised classification and correlation analysis. The final result shows several responses that managed to accomplish the aim and objectives of this study. The classification processing for the mangrove area had been successfully acquired with more than 85% accuracy. The changes of mangrove forest area were managed to obtain and it did prove that the mangrove area has shown some changes along the year of 2005, 2010 and 2015.

ACKNOWLEGEMENT

TABLE OF CONTENT