UNIVERSITI TEKNOLOGI MARA

ASSESSING THE POTENTIAL EXPOSURE OF ARTIFICIAL LIGHT ON SEA TURTLES AT PULAU PINANG

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BACHELORS IN SURVEYING SCIENCE AND GEOMATICS (HONOURS) - AP220

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Thesis submitted in fulfilment
of the requirements for the degree of
Bachelors in Surveying Science and Geomatics (Honours)

College of Built Environment, CBE.

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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.

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

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ABSTRACT

The most sea turtle's species are now endangered. Artificial light which is unnatural light emitted from a man-made sources such as urban built-up area is one of the most prevalent and poorly regulated types of anthropogenic pollution. GIS and remote sensing data are used to better understand on how artificial light impact on the sea turtles. The aim of this study is to analyze the potential exposure of artificial light pollution by urban built- up area on sea turtles. To achieve the aim, the objectives of this study are to generate light pollution map by using Visible Infrared Imaging Radiometer Suite Day Night Band (VIIRS-DNB) imagery. Second, to generate the density map of built-up area using Normalized Difference Built-up Index (NDBI) technique. Third, to determine the relationships between the artificial light pollution and density of built-up area. Fourth, to assess the effect of light pollution and built-up area on sea turtles' landings. The Pearson correlation coefficient method was applied in this study. The results obtained shows very strong positive correlation between Night Time Light (NTL) and Normalized Difference Built-up Index (NDBI). So, from this study also obtained the result of sea turtle nesting were located at the area with low value radiance of NTL and NDBI. Therefore, there is a relationship between light pollution and turtle nesting areas.

Keywords: Sea turtles, Artificial light, VIIRS-DNB, Light Pollution, NDBI.

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