INVESTIGATION OF MULTISPECTRAL SPECTRAL COVER FOR THE PRACTICAL USE IN IDENTIFICATION OF INDONESIA CORAL REEF STRATUM TYPES

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ABSTRACT

Coral reef habitat mapping that contain information of stratum types is a fundamental component of ecosystem-based coral reef management because it integrates a variety of information to define the extent, nature and health of these ecosystem. Field survey identifications in comparison with remote sensing approach are take a lot of time, high cost and not able to identified spatial distribution. Identification of stratum type using remote sensing data especially multispectral data is affected by the spatial and spectral resolution. Worldview-2 is a multispectral imagery that has six visible and two near infrared bands which higher spectral coverage rather than other multispectral imagery (IKONOS, QuickBird, Geoeye, AVNIR-2, and LANDSAT). The improved spectral cover is needed to investigate because is effect for stratum type identification. This paper is Furthermore, we evaluate whether the improvement of spectral resolution significantly improves the accuracy of stratum type identification. The only feasible way to examine the effect of spectral cover in various conditions is by build artificial dataset. The artificial dataset is consist information of object reflectance, water attenuation, water scattering, and error. The input data then modeled base on radiative transfer algorithm. The stratum type spectra's are from published database that collected outside Indonesia region in full resolution spectral cover but selected species represent Indonesia species. This research is evaluate the multispectral case so input data are generated from full resolution into multispectral spectral cover. In order to be able to evaluate then several case conditions has been construct which is in ideal condition, mixed spectral and with controlled noise. The result shows that in identification process reference data is play important rule and improvement of spectral cover in multispectral data is increasing the accuracy significantly compare with the basic multispectral cover for all constructed condition.

Keyword: *Multispectral, Spectral Cover, Coral Reef, Stratum types*