ABSTRACT

This research was conducted in Seribu Islands of DKI Jakarta province, from March to June 2009. The research objectives were to develop methods of ANN classification algorithm to map shallow water habitats, and to test the classification accuracy rate from image Quickbird satellite data with the standard method of ANN BP and AdaBoost algorithms. Primary data collected through remote sensing data and field surveys, while secondary data were collected from relevant research. Classification of digital image analysis using unsupervised classification ANN-SOM algorithm and supervised classification of BP and AdaBoost algorithm. The results showed that ANN-SOM algorithm to cluster shallow water habitats by Quickbird satellite show a pattern and a good performance after the input data is corrected using the method of invariant Deep Index (Lyzenga algorithm); ANN-BP and ANN-AdaBoost algorithm can map shallow water habitats classes; live coral, dead coral, sand, seagrass, sand mixed seagrass, sand mix coral; ANN-BP algorithm requires a number of iterations of 5,600 to recognize objects with cross entropy 0.20, while the AdaBoost algorithm requires the number of iterations 280, relatively little with quadratic error 0.24 until iteration stopping; level of classification accuracy thematic shallow water habitats training ANN-BP algorithm is obtained overall accuracy of 82.79% and 83.61% ANN-AdaBoost. Correction position shows the value of Delta E ranges between 0.4 - 6.7 meters, which explains that the positioning accuracy is better, although not optimal as using Differential GPS.

Keywords: Shallow Water Classification, Quickbird, Algorithm, ANN-SOM, ANN-BP, ANN-AdaBoost, Accuracy assessment