

Identification of spatial distribution of coral reef in Pigeon Island, Trincomalee by remotely sensed data

D.D.D. Weragodatenna^{1*}, M.G.W.M.K. Gunarathne² and A.B.A.K. Gunaratne¹

¹*National Aquatic Resource Research and Development Agency (NARA), Crow Island, Colombo 15, Sri Lanka*

²*Green Planet Eco Consultant Ltd, Palawatta, Battaramulla*

Spatial distribution of important under water habitats is one of the key requirements for the decision makers on the resource management perspective. Therefore, extent and distribution pattern of coral reef yield valuable information to formulate environmental monitoring and management plan for the Pigeon Island Marine National Park where located at Trincomalee District. Wide distribution of coral reef ecosystem in the park and associated waters is significant to the environmental and economic wellbeing in the area. Capability of Geo-eye satellite image with 0.5 m spatial resolution to detect aquatic habitats of coral reef ecosystem was evaluated through three steps; image pre-processing, image classification and accuracy assessment using Environment for Visualizing Images (ENVI 5.0). Object orient classification method was applied to analyse the distribution of coral reef. Accuracy of the classification was obtained by an error matrix, which is attained 80%. The study area, from Uppuveli Lagoon to Vallaipunam in Kuchchaveli, Trincomalee encompasses a wide distribution of reefs including live coral and fringing reefs over shallow areas, between 1-10 m depth. Massive fringing corals are located in 100-200 m width mainly along the coastline in southern part of Pigeon Island, from Salli Amman to Marble Beach which is about 50 ha. The live coral reef is located in the Pigeon Island Marine National Park, around small and large Pigeon Islands and Coral Island where it is located northern side of the park. The extent of coral coverage in the National Park and coral island is 35 and 23 ha respectively. Most of the corals are located in shallow waters, as fringing reefs at depths of 2- 6 m.

Keywords: coral reef ecosystems, Geo-eye satellite images, Pigeon Island, remote sensing

**Corresponding author – email : dddilhari@gmail.com/dilhari@nara.ac.lk*