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Extent and status of coral reefs in northern coastal waters of Sri Lanka

A.B.A.K. Gunarathna[1*] and Arjan Rajasuriya[2]

[1]Information Technology Division. National Aquatic Resources Research & Development Agency (NARA), Colombo 15, Sri Lanka
[2]Marine Biological Resources Division, National Aquatic Resources Research & Development Agency (NARA), Colombo 15, Sri Lanka

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Abstract

Coral reef habitats around Jaffna Peninsula and islands were mapped using Landsat 7 satellite images and their status was assessed using rapid underwater survey techniques. Mapping and surveying in the northern coastal waters was carried out in 2005 for the first time in Sri Lanka and it was conducted as part of a baseline survey to determine the impacts arising from the Sethusamudram Ship channel Project. Two Landsat 7 ETM + satellites images were geometrically and radiometrically corrected. A Depth Invariant Algorithm developed by Lyzenga (1978, 1981) and the method developed by Bierwirth and Burne (1992) for shallow water mapping via separation of depth and substrate components from multi-spectral data were applied for processing. Visual and digital interpretation techniques were used for mapping reef areas. Total reef area around Jaffna peninsular was calculated as 4.06 Km^2. Reef condition was assessed using rapid survey techniques at four reef sites and selected other locations were assessed using underwater visual observations. Massive corals dominated the fringing reefs along the northern coast and at Punkuduthivu Island while tabulate corals dominated the fringing reef off Eluvathivu Island in the northwestern corner of the peninsula. Live coral cover among the four sites varied between 58% and 35%.

**Correspondence : ajith@nara.ac.lk*