# MAPPING OF COASTAL ECOSYSTEMS USING REMOTE SENSING AND GIS

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## Abstract

The Indian coastline supports almost 30% of its human population, dependent on the rich exploitable coastal and marine resources. India is one of the 12 mega-centers of biological diversity. The Gulf of Mannar, located between India and Sri Lanka, is a shallow embayment of the Bay of Bengal. The gulf, which has been declared a bio-reserve is a highly productive area endowed with rich marine fauna including corals. In order to study the origin and nature of the sediments and paleo-environment, 2.6 m length core was collected with 5cm interval at 1320m water depths. The Gulf of Mannar consists of three important habitats such as coral reef, sea grass and mangrove. Though each has its own function and importance, the three closely interrelated and supporting each others in function. Proper planning and effective management of ecosystem can be achieved by collecting data on these ecosystems by the application of Remote Sensing techniques. The combined use of Remote Sensing and Geographical Information System provides a powerful multidisciplinary tool for evaluation of natural resources, both renewable and non-renewable with speed, accuracy and economy. An attempt is made to explore the advantage of newly added bands [coastal, yellow, red edge and NIR – 2] in WV – 2 satellite data in mapping the various ocean related parameters such as coral reef, seagrass related to their Bathymetry. Same way the data's received from past ten decades of IRS – 1C is compared with the present data. The Water column correction is used to eliminate the influence of the depth before supervised classification using ten classes from multivariate classification of field survey area. From the result of classification, we come to a conclusion that the habitat type image, is identified in term of quality of coral reef, seagrasses and more clarity and high resolution. So the ground truth verification has become simpler and many changes in the ecosystem have been notified. The combined use of Remote Sensing and Geographical Information System provides a powerful multidisciplinary tool for evaluation of natural resources, both renewable and non-renewable with speed, accuracy and economy.

Key words : Remote sensing, Coral reef; Seagrass, Bathymetry, Biodiversity mapping