Detection of submerged seagrass beds using IKONOS Images

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The potential of satellite images to map the seagrass beds of tropical shallow waters of Sri Lanka is evaluated using IKONOS Images. Remote sensing and GIS are effective tools in long term monitoring of the changes of seagrass distribution. Mapping of seagrass beds yields valuable information to study associated habitats and facilitates to formulate environmental monitoring and management of the marine environment.

IKONOS multi-spectral images with one meter spatial resolution were utilized for identifying and mapping the spatial distribution of seagrasses located up to three meters water depth from Mannar to Kilinochchi. Atmospheric correction and water column correction were performed to the imagery. Image segmentation was done for subsets. Seagrass map was created using object-oriented classification methods by ENVI 4.8 and ArcMap10 software. Overall accuracy of the analysis was 70%.

Seagrass beds are found to be distributed as densely populated meadows and scattered patches. Raster analysis of IKONOS data showed that about 19 sqkm area is covered by seagrasses within the study area.

Keywords: remote sensing and GIS, IKONOS satellite images, seagrass

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