

**REMOTE SENSING USES IN THE STUDY OF THE ESTUARINE
WETLANDS OF GUARATUBA BAY, SOUTHEASTERN BRAZIL.**

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The southeastern Brazilian coast is characterized by the presence of important estuarine systems. Guaratuba Bay (25° 50' S, 48° 30' W) is an elongated embayment with only one access channel to the open sea. Mangroves and salt marshes colonize almost the whole intertidal areas, supporting the high productivity of the adjacent aquatic ecosystem. The enhancement of the anthropic activity is responsible for different environmental impacts, as waste disposal, mangrove cut down and earthwork and hazardous touristic plans. In addition to the poor basic knowledge in this estuarine system, the anthropic impact in the wetlands are not being monitored. The present work aims to follow the vegetal occupation of the wetland areas in the last 40 years, to estimate the actual mangrove and salt marsh cover area and to estimate the actual salt marsh biomass. Spatial temporal patterns of vegetal occurrence are analyzed with aerial photographs with 1:25.000 and 1:70.000 scales, taken in 1952/ 1963/ 1980 and LANDSAT TM sensor digital images of 1989 and 1994. The intertidal present vegetation cover is estimated by the supervised method of digital classification using the latter images. Salt marsh biomass is assessed with field surveys in the fresh, mixed and salty sections of the Bay. The field data are correlated to the spectral responses in the images and the relationships of the salt marsh occurrence with the high fisheries production. Preliminary results are expressed in thematic maps, showing the wetlands boundaries and the mangrove and salt marsh distributions patterns in a historic sequence. Remote sensing techniques were essential to recover the environmental history in the region. Areas submitted to environmental risks were localized and can now be carefully managed.