

Impact of Dredging Marine Environment , South East Cost of India : An Integrated approach using RS & GIS

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India has a coastline of 7,500km of which 2,000km wide is called as Exclusive Economic Zone (EEZ). The Indian coastline supports almost 30% of its human population. The Bay of Bengal and the Arabian Sea are fabulous grounds of marine life. India continues to be the 7th largest marine nation in the world. Dredging operations along the marine marginal bodies are long established human induced disturbances in the marine environment. The dredging activities and the assessment of their environmental, social and economic implications due to contamination sediments has gained increasing importance in recent years in both developing and industrial countries. This is due to the rapid world wide growth of international trade and commerce and to the fact that modern ships are larger and thus require deeper navigation waterways. Ports and harbors must therefore increase the depth of their fairways in order to maintain and enhance their economic competitiveness. This paper synthesizes the extent and nature of scientific information about how dredging activities potentially affect habitats and key ecological functions supporting recruitment and sustainability of estuarine and marine environment. Fourteen samples were collected after dredging (2012) from fixed sampling stations. The impact on community was estimated at species level (Foraminifera, Protozoan, using statistical analysis). An integrated approach using Remote Sensing (RS) and Geographical Information System (GIS) was employed to study the Marine Environment. The maximum negative effect on benthic foraminifera was reduction by 60%, for species richness and by 50% for diversity. This data were compared with the data obtained before dredging (2006) in a time services spanning 6 years. A geospatial model for the coastal morphological changes is being prepared. A comparison of the satellite data in the form of imagery is being carried out. Statistical treatment will be given to the data sets to know the relation among parameters. Before, this type of dredging activity is undertaken, each case should be studied regarding viability, the environmental medium where it will take place, the best time of year, and the type of dredging to be used. Small-patch dredging operations are proposed when ever possible, since they allow a quick re adjustment of the initial Marine environment. Thus, the objective of this investigation is to verify the potential impact and effects of dredging on the Marine environment based on alterations of Coastal geomorphology, bottom sediment and the micro biota using RS & GIS. These findings will help to underpin improved planning of management strategies for dredging operations in India and other countries.