Leveraging Geospatial Technology to Monitor and Combat Plastic Pollution Along the Coast

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SUMMARY

Plastic pollution along coastal areas has emerged as a global environmental crisis, threatening marine ecosystems, livelihoods, and public health. Geospatial technology offers innovative tools to address this growing challenge by enabling precise monitoring, assessment, and management of plastic pollution. This study explores the application of geospatial technology in identifying coastal plastic pollution hotspots, analyzing spatial patterns, and supporting sustainable mitigation efforts. By leveraging satellite imagery, GIS-based spatial analysis, the research explores how geospatial tools can provide actionable insights for policymakers, environmentalists, and coastal communities. The study examines key geospatial methodologies, including spectral analysis of Sentinel-2 imagery, proximity analysis to identify sources of pollution, and temporal monitoring of the accumulation of plastic waste. Furthermore, it emphasizes the integration of geospatial data with community-driven reporting systems to enhance local engagement in plastic pollution management. The findings demonstrate the potential of geospatial technology to strengthen decision-making processes and promote effective interventions against plastic pollution. This research explores the pivotal role of geospatial tools in fostering clean coastal environments and provides a framework to achieve SDG 14.