

**Title: Sources and impacts of microplastic on the world's longest sea beach of the Bay of Bengal coasts: a review on microplastic management**

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**Abstract:** The toxic impact of microplastics (MPs) in the terrestrial and aquatic environment has recently become a global problem. The Bay of Bengal coasts is an important bio-diverse ecosystem, which help the people for their sound living and gather natural resources. However, the distribution, impact, source and transport mechanism, and policy to take initiatives for MPs pollution control at the Bay of Bengal coasts' have received less attention. Therefore, this review summarizes MPs' distribution and their source in the Bay of Bengal coasts' ecosystems. Current knowledge extends the impacts of MP on this vital ecosystem, existing policy, and further recommendations to mitigate MPs contamination are critically assessed in this study. Furthermore, mechanisms of MP on human health are also highlighted with the identification of current research gaps and future study suggestions. Given the escalating plastic usage and the prevalence of important sea products globally, there is a pressing need to prioritize research efforts on the impacts of MPs on the Bay of Bengal coasts from a long-term perspective. Knowledge obtained in this way would inform the scientists, stakeholders, and policy makers in such a way as to help them mitigate impacts of the micro- and nano-plastic legacy at this region.

**Keywords:** Bay of Bengal impact marine pollution microplastic mitigate

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