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PTI | Feb 5, 2018, 14:18 IST

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Representative image

MELBOURNE: Microplastics in our oceans are posing a significant risk to filter-feeding marine animals like manta rays and whale sharks, especially in pollution hotspots like the Bay of Bengal, scientists have warned.

Researchers from Murdoch University in Australia and University of Siena in Italy said that microplastics could be hazardous because they

contain toxic chemicals.

Plastic-associated chemicals and pollutants can accumulate over decades and alter biological processes in the animals, leading to altered growth, development and reproduction, including reduced fertility, according to the study published in the journal Trends in Ecology & Evolution.

While a definitive connection between microplastic ingestion and toxin exposure for filter feeders remains to be confirmed, studies into sea birds and small fish have found a link, said Elitza Germanov, a PhD student at Murdoch University.

Marine filter feeders are likely to be at risk because they need to swallow hundreds to thousands of cubic metres of water daily in an effort to capture plankton.

They can ingest microplastics directly from polluted water or indirectly through contaminated prey.

These species also tend to congregate in habitats which overlap with microplastic pollution hotspots, including the Gulf of Mexico, the Mediterranean Sea, the Bay of Bengal and the Coral Triangle, which is the marine area comprising the waters of South East Asian countries including Indonesia.

Indigestible plastic particles may damage the digestive systems of these iconic species, researchers said.

"Despite the growing research on microplastics in the marine environment, there are only a few studies that examine the effects on large filter feeders," said Germanov.

"This is because it is difficult to assess plastic concentrations via conventional methods such as stomach analysis, because these are unsuitable for threatened species like whale sharks and manta rays," she said.

"So we are using non-lethal sampling of small amounts of tissue, which we are testing for chemical tracers using sophisticated and sensitive analytical tools," she added.

Maria Cristina Fossi from the University of Siena said that studies on whale sharks in the Gulf of California and on fin whales in the Mediterranean Sea confirmed exposure to toxic chemicals.

"As these areas are hotspots for microplastics, our results could indicate that filter feeders are taking up microplastics in their feeding grounds," she said.

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Microplastic contamination had the potential to reduce population numbers of filter feeding animals, many of which are long-lived and have few offspring throughout their lives, said Germanov.

There are several species among the filter feeders that are listed by the IUCN (International Union for Conservation of Nature) as globally threatened species and are prioritised for conservation.

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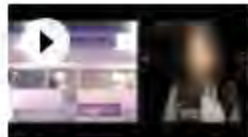
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