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海洋生物地球化學與生態系統整合研究

Title : Plastics in the Marine Environment

題目: 海洋環境中的塑膠

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Abstract:

Plastics contamination in the marine environment was first reported nearly 50 years ago, less than two decades after the rise of commercial plastics production, when less than 50 million metric tons were produced per year. In 2014, global plastics production surpassed 300 million metric tons per year. Plastic debris has been detected worldwide in all major marine habitats, in sizes from microns to meters. In response, concerns about risks to marine wildlife upon exposure to the varied forms of plastic debris have increased, stimulating new research into the extent and consequences of plastics contamination in the marine environment. Here, I present a framework to evaluate the current understanding of the sources, distribution, fate, and impacts of marine plastics. Despite remaining knowledge gaps in mass budgeting and challenges in investigating ecological impacts, the increasing evidence of the ubiquity of plastics contamination in the marine environment, the continued rapid growth in plastics production, and the evidence—albeit limited—of demonstrated impacts to marine wildlife support immediate implementation of source-reducing measures to decrease the potential risks of plastics in the marine ecosystem.

摘要:#

1950 年全球塑膠開始商業化量產，那時的年產量不到 5000 萬噸，之後不到 20 年，科學家就首度報導了海洋環境受到塑膠污染，到了 2014 年全球塑膠的年產量已攀升到約 3 億噸。目前從微米到公尺大小的塑膠碎屑都可以在全世界主要的海洋生物棲息地被偵測到。因此，大家關注海洋生物曝露在各種型式塑膠碎屑的風險與日俱增，也激起了關於海洋環境受到塑膠污染的最終結果的新興研究領域。本篇文章中，作者提出了一個能了解當前海洋塑膠來源、分佈、宿命和衝擊情況的評估架構。儘管在塑膠量的收支平衡和對於具有挑戰性的生態衝擊調查方面的知識仍有所缺口，但已經有越來越多的證據顯示海洋環境受到塑膠的污染已無處不在。雖然能證明海洋生物受到塑膠衝擊的證據有限，但在塑膠產量持續激增的情況下，已支持我們應該即刻採取源頭減量的作為，以降低海洋生態系統受到塑膠污染的潛在風險。

References:

Kara Lavender Law. Plastics in the Marine Environment. #Annu. Rev. Mar. Sci. 2017. 9:205–29. Doi:10.1146/annurev-marine-010816-060409