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# Atlas of Ocean Microplastics (AOMI) database: a collaborative initiative to unify microplastic data

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## Abstract

Global plastic pollution poses a critical and escalating threat, transcending borders and impacting diverse ecosystems. Addressing the problem of plastic waste in oceans needs a concerted global effort underpinned by the sharing of comprehensive scientific data on plastic pollution distribution. Despite the escalating global efforts in microplastic monitoring, the lack of standardized observation methods and data hindered the improvements in this research field. To overcome this challenge, the Ministry of Environment of Japan (MOEJ) developed the Guidelines for Harmonizing Ocean Surface Microplastic Monitoring Methods in 2019 and a subsequent initiative to create a global database to collect and share available floating microplastic data. The Atlas of Ocean Microplastics (AOMI) database project is supported by the Center for Ocean Plastic Studies and international leading experts in this area, focusing on data collection, processing, and management. By leveraging open-source data and collaborating with existing information systems, a unified approach can be achieved to enhance data comparability and accessibility. A key aspect involves harmonizing existing definitions and establishing the minimum requirements for metadata and data reporting on global-scale marine debris indicators, with an adaptive framework designed to accommodate the continuous evolution of the microplastic research field. In this sense, the AOMI initiative collaborates with established global observation networks and databases, such as GOOS, GPML, NOAA, EMODnet, and others, fostering the development of a federated and interoperable global-scale data management system. This initiative emphasizes the crucial need for open-source, worldwide data to inform both policymaking, research, and public awareness, fostering a comprehensive understanding of the implications of microplastic pollution.

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