

## Abundance of pelagic microplastics in the present and future oceans

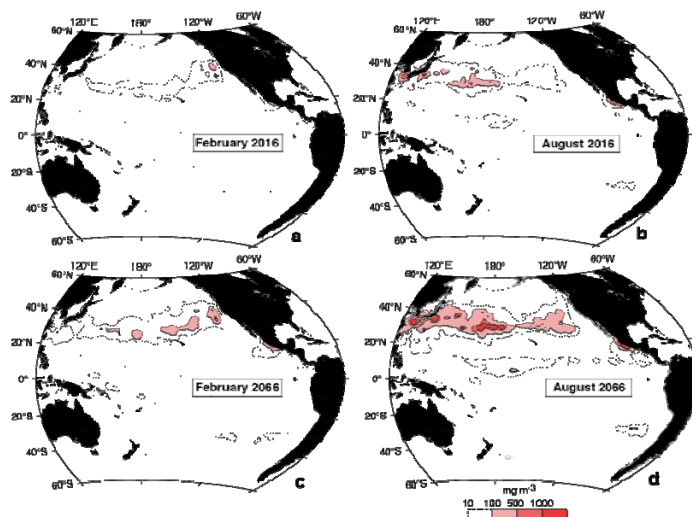
(Kyushu University, Tokyo University of Marine Science & Technology, Civil Engineering Research Institute for Cold Region, Ministry of the Environment)

Laboratory-based studies have suggested that marine organisms can be harmed by ingesting microplastics. Researchers in Kyushu University, Tokyo University of Marine Science & Technology, and Civil Engineering Research Institute for Cold Region show the secular variations of pelagic microplastic abundance in the Pacific Ocean from 1957 to 2066, based on a combination of numerical modeling and transoceanic surveys conducted meridionally from Antarctica to Japan. Marine plastic pollution is an ongoing concern especially in the North Pacific. The results of their numerical model suggested that the weight concentrations of pelagic microplastics in the western and central North Pacific would increase approximately twofold (fourfold) by 2030 (2060) from the present condition, if the amount of plastic waste entering the ocean keep on increasing. Therefore, pelagic microplastics will be potentially harmful to marine organisms exposed to dense concentrations in the western and central North Pacific. However, at the present time, there remains a large gap between microplastic observations (hence, modeling) and laboratory-based studies with respect to sizes of microplastics to which aquatic biota are exposed.

For more information about this research, see:

Isobe, A., S. Iwasaki, K. Uchida, and T. Tokai "Abundance of non-conservative microplastics in the upper ocean from 1957 to 2066". Nature Communications, January 24, 2019.

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**Fig. 1.** Abundance of microplastics in the present and future. The panels represent the weight concentrations averaged in February (a) and August (b) in 2016, and February (c) and August (d) in 2066 at the sea surface.

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