



High concentrations of microplastics have been detected in the ocean, mainly in the subtropical gyres that accumulate this type of waste. The long-term effects of this type of pollution on ecosystems and marine biota are still unknown. The present study aims to quantify and characterize neustonic microplastics and zooplankton in the waters of the Macaronesia, an area little studied to date.

MATERIALS AND METHODS

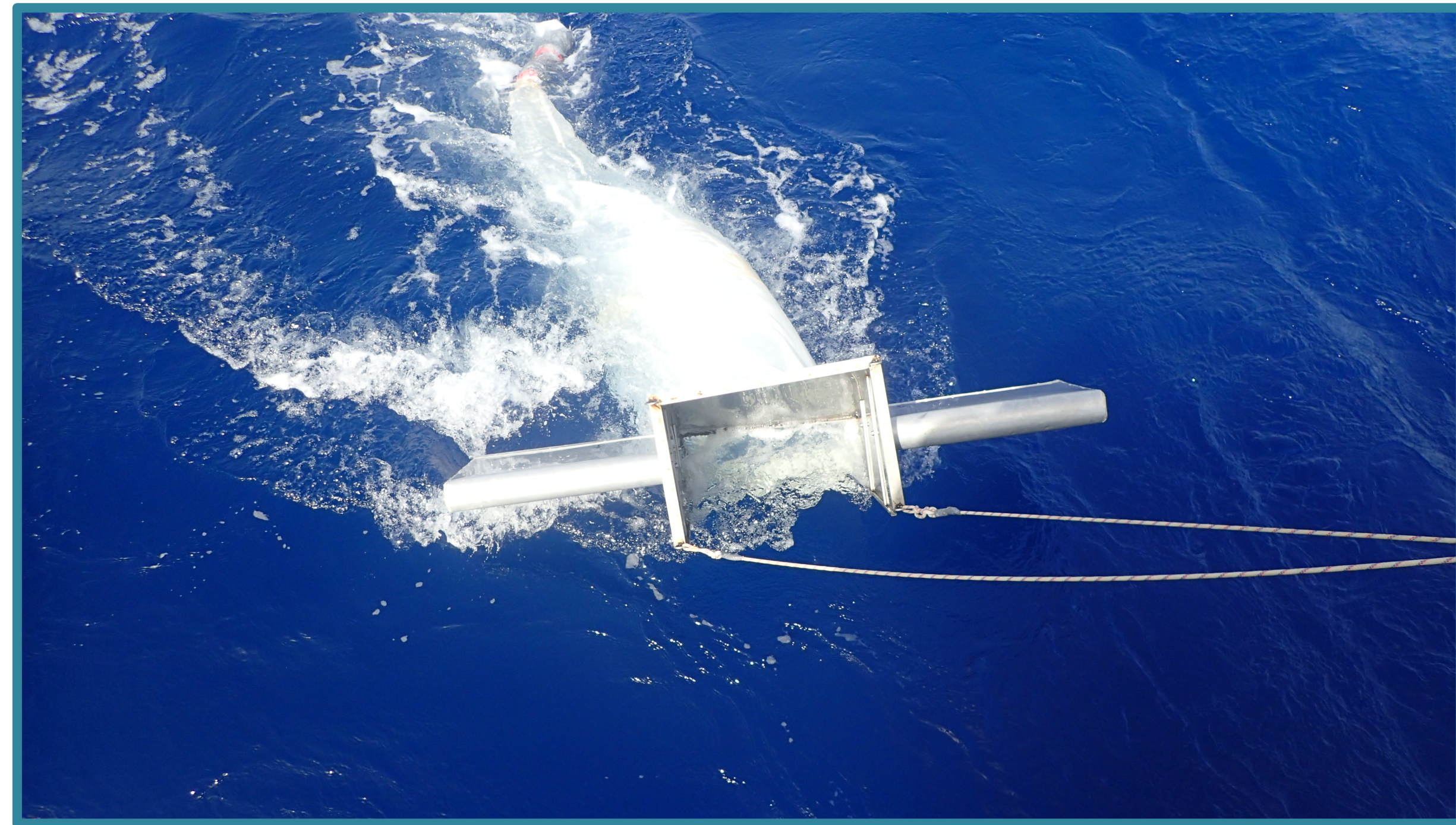


Figure 1. Manta net sampling.

A total of 45 neustonic samples were collected, 24 in the Canary Islands archipelago, 12 in Madeira and 9 in the Azores in the Macaronesian region. Samples were collected with a Manta net in opportunistic samplings in different periods between 2015 and 2018. The microplastics and zooplankton (in number of units) collected were divided by the total area of filtered water and the concentration was expressed in items/Km².



Figure 2. Sample collected in Gran Canaria

MAIN RESULTS

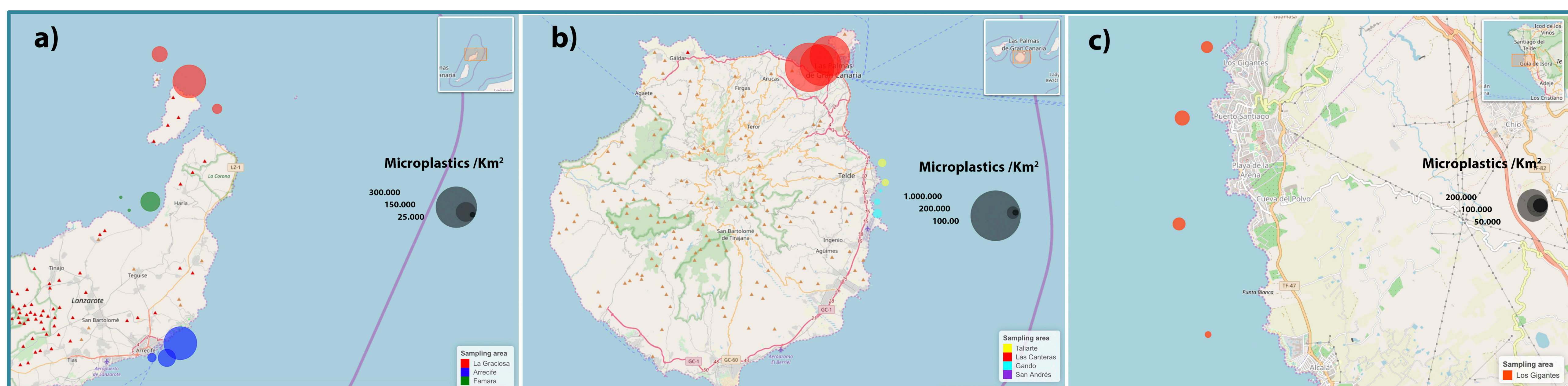


Figure 3. Sampling areas in the Canary Island archipelago showing microplastic concentration in MP/km². a) Lanzarote and La Graciosa Islands. b) Gran Canaria Island. c) Tenerife Island.

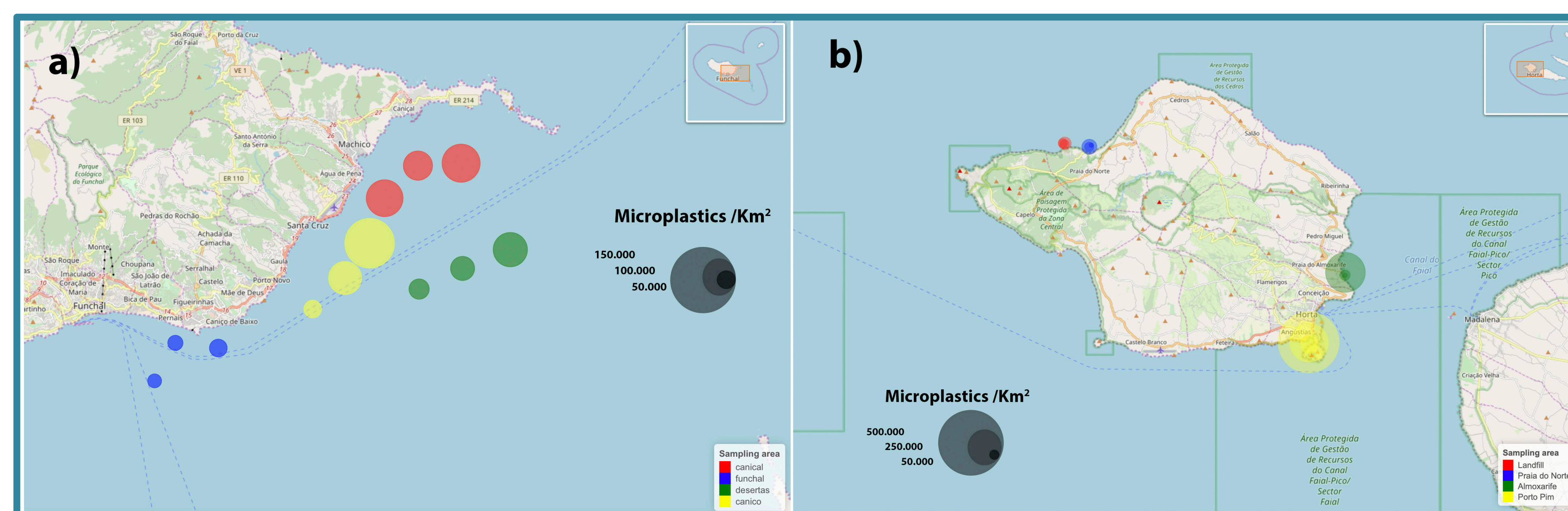


Figure 4. Sampling areas in Madeira and Azores archipelagos showing microplastic concentration in MP/km². a) Madeira Island. b) Faial Island.

Our results show a great variability in the concentration of microplastics with maximum values of more than **1 million particles** of microplastics per square kilometre in Las Canteras (Canary Islands) (Herrera et al. 2020).

Table 1. Ratio MP/zooplankton in Las Canteras, the area of highest accumulation, for the fraction 1-5mm.

Maximum accumulation zone (Las Canteras)	Ratio Abundance MP/Zoo	Ratio WW MP/Zoo	Ratio DW MP/Zoo
MP 1-5 mm	0.07	0.1	2.0

Twice as much plastic as zooplankton in dry weight was found. These values highlight the potential danger that contamination by microplastics -and their associated chemical contaminants- poses to marine biota, especially for large filters.

References:

Herrera A, Raymond E, Martínez I, Álvarez S, Canning-Clode J, Gestoso I, Pham CK, Ríos N, Rodríguez Y, Gómez M 2020. First evaluation of neustonic microplastics in the Macaronesian region, NE Atlantic. *Marine Pollution Bulletin* 153.

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