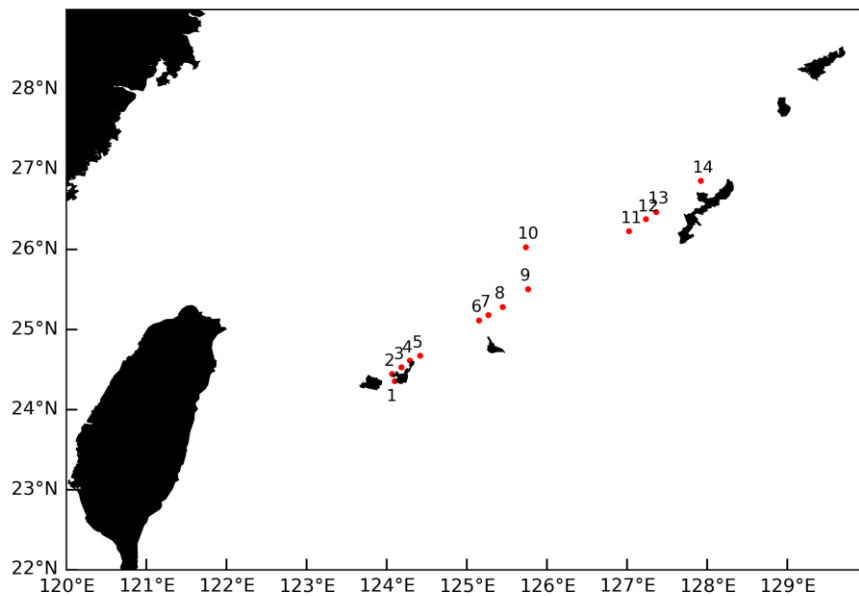


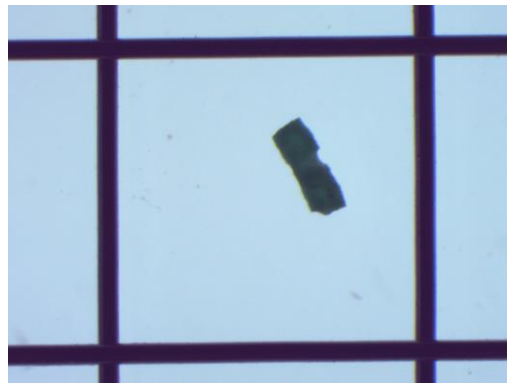
## METHOD

The procedures extracting microplastics were in line with Isobe et al. (2019). The seawater samples including the suspended particulate matter (SPM) at 14 stations (Figure 1; Station 6 was a blank) were sent to Kyushu University for the extraction of plastic fragments. All samples were observed on a monitor display via a USB camera (HDCE-20C; AS ONE Corporation, Osaka, Japan) attached to a stereoscopic microscope (SZX7; Olympus Corporation, Tokyo, Japan) for the visual identification of their color and shape. When the fragments were too small for visual differentiation between microplastics and natural SPM, the polymers in the sampled material were identified using a Fourier transform infrared spectrophotometer (FTIR alpha; Bruker Optics K.K., Tokyo, Japan). Plastic fragments (photo 1), fibers (probably fishing lines; photo 2), and expanded-polystyrene particles (photo 3) were extracted by removing natural SPM.

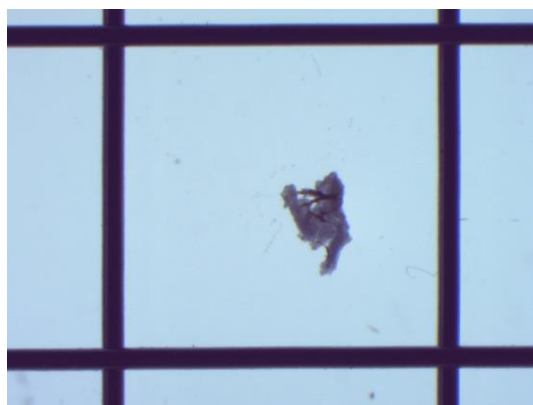


**Figure 1** Observation stations

The number of plastic pieces remaining were counted in each size category with an increment of 0.1 mm for microplastics, 1 mm for mesoplastics between 5 and 10 mm, and 10 mm for mesoplastics >10 mm. The sizes were defined by the longest length of each irregularly shaped fragment visible on the monitor display and were measured using image-processing software (ImageJ downloaded from <http://imagej.nih.gov>). Particle counts within each size category were divided by the volume of seawater filtered during each tow to convert them to particle counts per unit seawater volume (concentration with the unit of pieces  $m^{-3}$ ). We obtained the concentration of all microplastics at each station by integrating the concentrations of fragments with sizes ranging from 0.3 to 5 mm.



**Photo 1** Plastic fragment samples at Sta.10. The photograph includes a 5-mm grid, with grid lines of 0.3 mm.



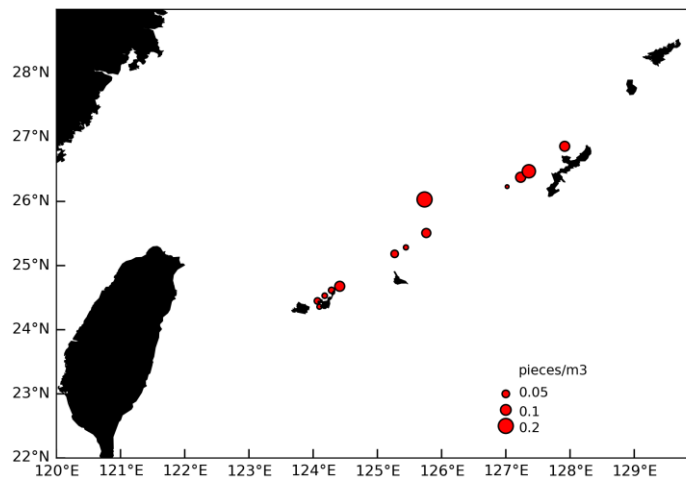
**Photo 2** Same as photo 1 but for an expanded-polystyrene particle sampled at Sta. 10.



**Photo 3** Same as photo 1 but for a fiber sampled at Sta. 10.

## RESULTS

In total, 415 plastic fragments were extracted from seawater samples at 14 stations. Primary microplastics, such as pellets, were not detected at the present time. Vast majority of microplastics was fragments (345 pieces; 82.9%), and expanded-polystyrene particles (48 pieces; 11.5%) and fibers (23 pieces; 5.5%) follow. Figure 2 shows the abundance of microplastics with a metric of particle count per unit seawater volume. The average abundance was 0.039 pieces/m<sup>3</sup>, which is two orders of magnitude smaller than that observed around Japan Islands (Isobe et al., 2015)



**Figure 2** Abundance of surface microplastics. The magnitudes are represented by diameter of red circles as shown in the lower right.

## Reference

Isobe, A., K. Uchida, T. Tokai, S. Iwasaki "East Asian seas: a hot spot of pelagic microplastics", *Marine Pollution Bulletin*, **101**, 618-623, 2015.

Isobe, A., S. Iwasaki, K. Uchida, and T. Tokai "Abundance of non-conservative microplastics in the upper ocean from 1957 to 2066", *Nature Communications*, **10**, 417, 2019

Supplementary data: excel file for dataset