Current progress on marine microplastics pollution: A review on pollution occurrence, detection and environmental effects

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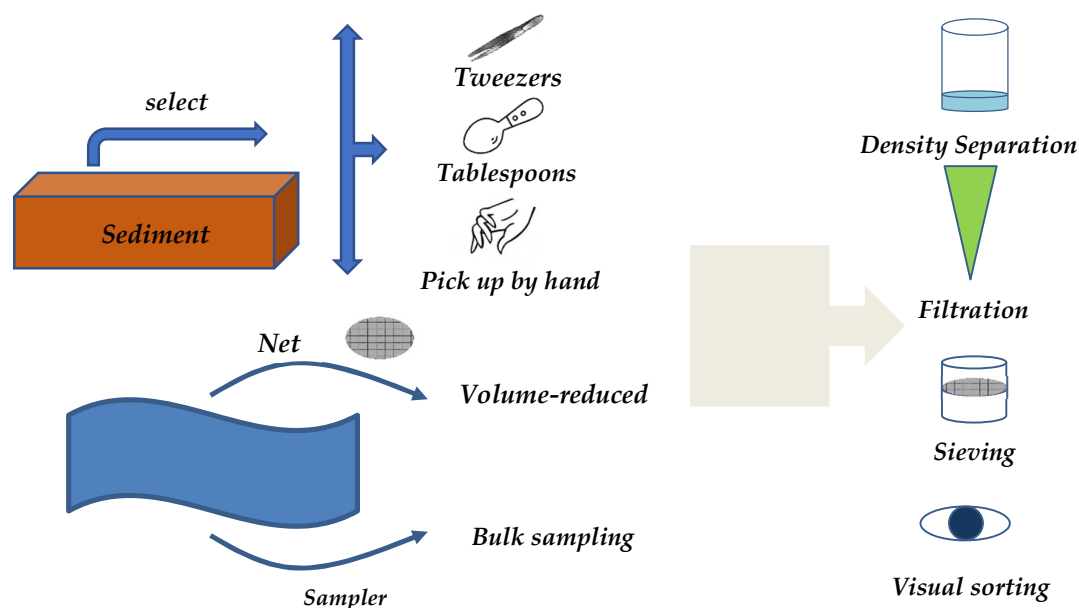* Correspondence: liufeifei@sdu.edu.cn

Figure S1. Sampling technologies and methods of processing.

Table S1. Advantages and disadvantages of the identification and quantification methods for microplastics.

Method	Advantages	Disadvantages
Microscopy	▪ Simple, fast, and easy	▪ High possibility of false positive ▪ High possibility of missing small and transparent plastic particles
FTIR	▪ Suitable for aliphatic compounds and polyesters ▪ Short measurement time	▪ Very small particles (<10 µm) are not detectable ▪ Spectra quality depends on sample purity, particle size and thickness
Raman	▪ Suitable for microplastics made of aliphatic, aromatic or C=C compounds ▪ Detection of down to 1 µm microplastics in size	▪ Long measurement time ▪ Interference by sample purity and measurement parameters
Py-GC-MS	▪ Simultaneously identify polymer types of microplastics particles and associated organic plastic additives	▪ Only a single particle can be analyzed in each run and not suitable for complex sample mixtures ▪ A few polymer identification
TGA-TDS-GC-MS	▪ Allow the identification of high amount of environmental samples without any presorting or sample preparation	▪ Interference by TGA experiment conditions
alkaline hydrolysis LC-MS/MS	▪ High recovery and analyzing efficiency ▪ Separation of microplastics from the samples is unnecessary ▪ Low loss of microplastics caused by picking	▪ Not suitable to quantify the different microplastics which contain the same building block compound