

Laboratory protocol for microplastics extractions from sediments

1. Dry sediment samples overnight at 60°C;
2. Weight 400g of dry sediment into a clean beaker;
3. Separate size fractions using a 4mm stainless steel mesh sieve;
4. Manually count and identify any plastic fragments retained in the >4mm sieve;
5. Transfer the sediment <4mm retained in the sieve collector into a new cleaned beaker and add 400ml of a saturated NaCl solution (35.7g NaCl/L);
6. Stir the solution vigorously for 5 minutes with a clean glass rod and let settle for 30 minutes (this allows sedimentation of the heavier particles and the microplastics to float to the surface);
7. Decant the solution on top of the settled sediment into a separatory funnel and allow to settle for 30 minutes (ideally overnight to allow the clay fraction to settle);
8. Discard the light sediment fraction by opening the tap in the bottom of the separatory funnel and gently allow the solution to flow until only the top 2-3 cm of the solution remain;

9. Add 400ml of distilled water into the separatory funnel to dilute the salt;
10. Filter the solution through filter paper (e.g. F1001 from CHM) (ideally filter through a 0.45 μ m glass filter using a Buchner funnel);
11. Transfer the paper filter onto a labelled petri dish and let dry at room temperature for 24h;
12. Finally, observe the filter paper under a stereo microscope at 30X magnification and record the number, shape and type of microplastic particles present on the filter paper on the attached table.

Note: The density-separation process (**step 5**) can be repeated twice to maximize recovery.

