Sampling Sand for Microplastics

LOMP
Lake Ontario MicroPlastics Center

Developed by the Lake Ontario Center for Microplastics and Human Health.

Materials

Dry Method

- 2-3 sieves of different sizes. We recommend 5 mm, 3 mm and 1 mm. Sieves can be purchased from an online marketplace such as Amazon (search “soil sifter” or “soil sieve”). If they don’t come with labels, you may want to label them with the mesh size. If not available, you can also use 2 kitchen strainers, one with larger holes and one mesh.
- 1 closed-bottomed container (to catch the sand from the sieves)
- ~4 cups (or more) of sand per set of sieves. If collecting the sample in the field, you will need at least 1 bucket and 1 shovel/scoop.

Wet Method

- 1 sieve or kitchen strainer. We recommend a 0.25 mm mesh-size sieve or mesh kitchen strainer. Choose the smallest mesh size that still allows the sand grains to pass through.
- ~4 cups (or more) of sand per set of sieves. If collecting the sample in the field, you will need at least 1 bucket and 1 shovel/scoop.
- 1 bucket of water
- Tools such as spoons or small shovels

Sorting your sample (for both methods)

- White plate to sort sample on - 1 per group or person sorting
- Magnifying glasses
- Tweezers
- Printouts of the Microplastics Sorting Sheet (template provided)
- Printouts of the “Spotter’s Guide to Plastic Pollution”
- Tray or towel (1 per sieve) – if using wet method

Procedure

Both techniques offer advantages and disadvantages. The dry method takes more time and requires more sieves but provides more information about your sample. Plastic waste found will already be sorted into size ranges and participants will observe that for the smaller sizes it is harder to tell natural and plastic material apart. The wet method is faster but requires manual

Developed by the Lake Ontario Center for Microplastics and Human Health (LOMP) with support from NIEHS (P01 ES035526) and the National Science Foundation (OCE-2418255). Last updated 12/19/24.

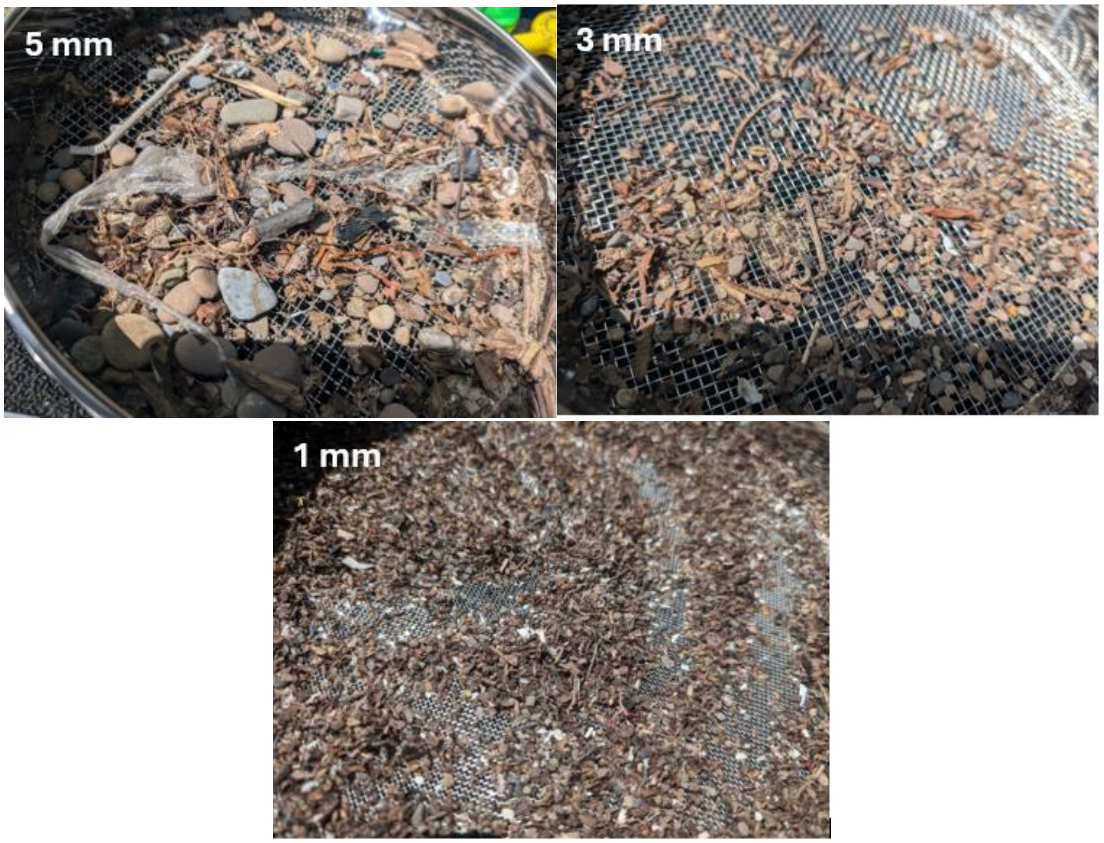
size sorting and limits the sample collected to only one size range. It also requires access to water and requires more fine-motor skills.

Tips for collecting your sample (both methods)

- Collect sand from the surface or just below the surface.
- Look for areas where wind or water have moved debris.
- Avoid collecting any visible potentially hazardous materials such as sharps, hygiene items, or glass.
- Sample off the beaten path; many city or county-managed beaches and parks have trash picked up daily. Along the edges or in less managed areas may have more trash.

Dry Method

1. Stack up the sieves with the largest mesh size on top and the smallest mesh size on the bottom. Place the stacked sieves over the closed-bottomed container.
2. Pour sand through the top (largest) sieve.
3. Shake the stack of sieves to move the sand through. The sand should move easily through the larger size; once all the sand has moved through to the next size, you can take the top sieve off to make it easier to shake the smaller ones. Continue until no more sand is passing through the sieves.
4. If you are using the kitchen strainers, you may need to do them one at a time. Shake the larger one over a closed-bottomed container and then pour the sieved sand through the smaller size.



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Wet Method

1. Fill a bucket about one-half to two-thirds of the way with water.
2. Hold your sieve over the bucket and pour sand in. Do not fill the sieve more than halfway with sand.
3. Hold the sieve in the bucket so that just the bottom (with the mesh) is in the water. Water will come in the bottom of the sieve. Do not let the water come over the top of the sides of the sieve. This is so you do not lose any material over the sides.
4. Shake the sieve or use tools (spoons, small shovels) to move the sand around in the sieve to push it through the mesh. We do not recommend using your hands to push the sand around in case there was any sharp or hazardous debris collected accidentally.
5. Once all the sand has moved through the sieve, lift the sieve out of the water and place it on a towel or tray to catch drips.

Sorting your sample (for both methods)

1. Remove items caught in the sieve to the white plate. Write the size of the mesh (or type of strainer) on the top of the Microplastics Sorting Sheet. If using the dry method, do this one size range (one sieve) at a time.
2. Use the magnifying glasses and tweezers to sort out the plastic and other debris and place them on the Microplastics Sorting Sheet.
3. See the “Spotter’s Guide to Plastic Pollution” for tips on separating plastic from non-plastic debris. Participants will notice that as the pieces get smaller, it will get harder to tell the difference.

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Mesh size: _____

Not Plastic

Plastic