

9-12 Microplastics Report

Group Member's Names:

Question: What kind of plastic is the most common in the study area?

Hypothesis: _____

Materials:

- 0.25 m x 0.25 m² transect
- Ruler
- 4 L of saltwater (from site) or 4L of site water and 800g of salt
- Large bucket
- Serving spoon/scoop
- Measuring beaker for up to 4 L
- 1 kitchen strainer (mesh should be approximately 1mm in size)
- Timer
- Sample Collection jar
- Rinse bottle
- Dissecting scope
- Small petri dish or crystalizing dish with grid on the bottom
- Glass slides
- Tweezers or pipette

Procedure:

1. Choose where the group will collect sand or soil.
2. Assign roles within the group or understand the role assigned.
3. Assemble supplies.
4. Place transect at the high tide level on the beach or edge of bank of the water source. Remove any large objects (sticks, rocks, etc.)
5. Stick the ruler into the sediment to measure out 2 cm (1in). Scoop up the top 2 cm of sediment within the quadrant and put into the bucket.
6. If a freshwater site, pour the salt into the bucket along with the sediment.
7. Pour 4 L of water, collected on site into the bucket.
8. Set the timer for 2 minutes and stir.
9. Let the mixture settle for at least 5 minutes-1 hour, until the mixture is not murky.
10. Have one teammate hold the kitchen sieve. Another teammate will pour the liquid portion of the mixture through the sieve. Discard the sediment in the bucket.
11. Put on-site water into the rinse bottles. Use the rinse bottles to give the sieve a good rinse.

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12. Tilt sieve to move contents into collection jar. Rinse the underside of the sieve to release any trapped microplastics and collect in jar. Repeat rinse 3 times.

Microscope procedure:

14. Pour a portion of the sample into the petri or crystallizing dish with a grid underneath. Be sure to label which sample it is.

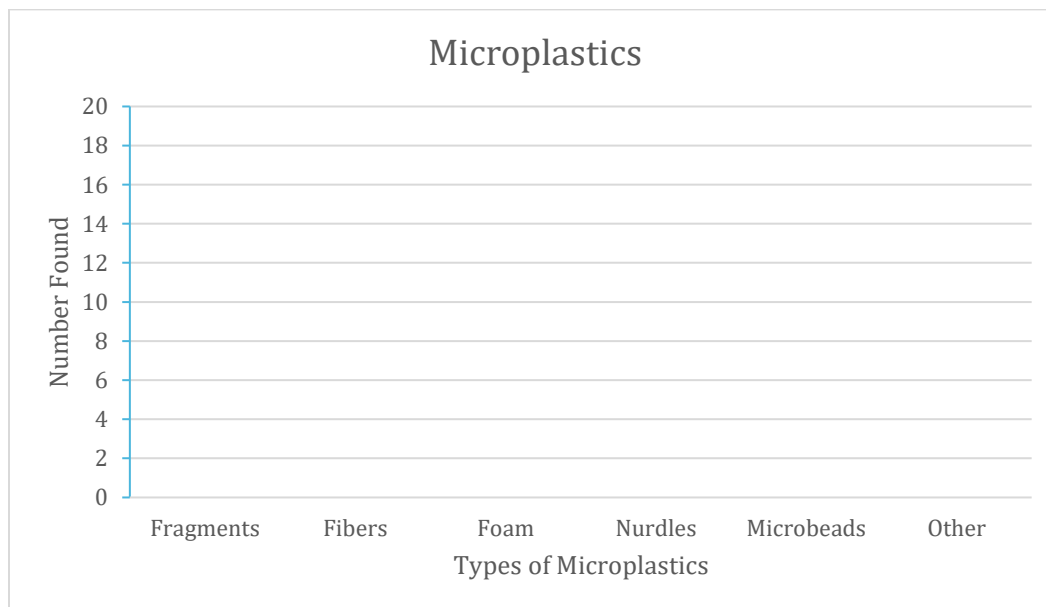
15. Place the petri dish under the microscope. Scan the water for anything that has a bright color or could be fiber/plastic. Use the grid to go back in forth looking for material. Scan top to bottom. The most common micro-plastics found in the Charleston Harbor are blue or black.

16. If something is found, investigate with the tweezers or pipette and place on a glass slide. Document the item into the data sheet. Keep looking.

Data:

What did you find in your sample?

Analyze Data:



Describe a trend you notice in the graph.

Example: 50 percent of the microplastics collected were foam.

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Conclusion

How would reducing your trash effect the microplastics that were collected?

How does recycling help the amount of microplastics that were collected?

Solutions:

Take the ecological footprint calculator quiz found at: <https://www.footprintcalculator.org/>

Design a poster or pamphlet campaign to educate your school, neighborhood, or community on how many earths your current lifestyle requires. Using the solutions found on the website, describe 10 changes they could make to decrease their ecological footprint. (You can play around with the calculator using the solutions suggestions to see ways you can decrease your footprint and use fewer earths).

