Last Stop: The Ocean

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Toronto Litter Snapshot

The City of Toronto (Ontario, Canada) is home to nearly 3 million people living near the shores of Lake Ontario. In 2023, litter traps were installed at three locations in the harbourfront and maintained over a period of five months. These trash capture devices intercepted floating litter and prevented it from flowing farther downstream. The goal? To stop litter in its tracks and raise public awareness about the flow of litter downstream to the ocean.

Marine Litter?

But Toronto is Far from the Ocean!

Most litter found in the ocean originates on land. In other words, marine litter is mostly land-based litter—everyday household or take-out items that travel by wind and water before reaching their last stop, the ocean. In the case of Toronto, local litter can enter streams and storm drains before flowing into Lake Ontario and catching a ride downstream through the St. Lawrence River to the Atlantic Ocean.

Trash capture devices, including the litter boom and Seabin pictured above, were installed at three sites in the Toronto harbour: Peter Street Basin, Police Basin, and Marina Four/Simcoe Wave Deck. Source: Osprey Initiative

Quick Figures

58 kg

of trash were removed from the Toronto Harbour over the course of the five-month pilot project in 2023.

To put that in perspective, that is the weight of

more than 116 Brown Bullhead

The **Brown Bullhead** (*Ameiurus nebulosus*) is a fish native to the Province of Ontario. A recent study found microplastics contamination in Great Lakes fish, including Brown Bullheads.[1]

1. Munno, K., Helm, P.A., Rochman, C., George, T., Jackson, D.A. 2022. Microplastic contamination in Great Lakes fish. *Conservation Biology*, 36, e13794. <https://doi.org/10.1111/cobi.13794>

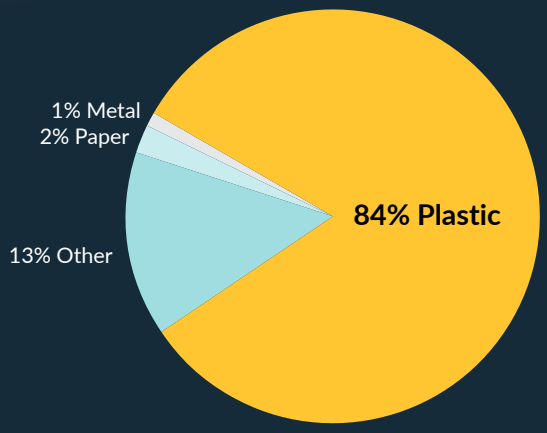
What did we find?

Let's dig into the details.

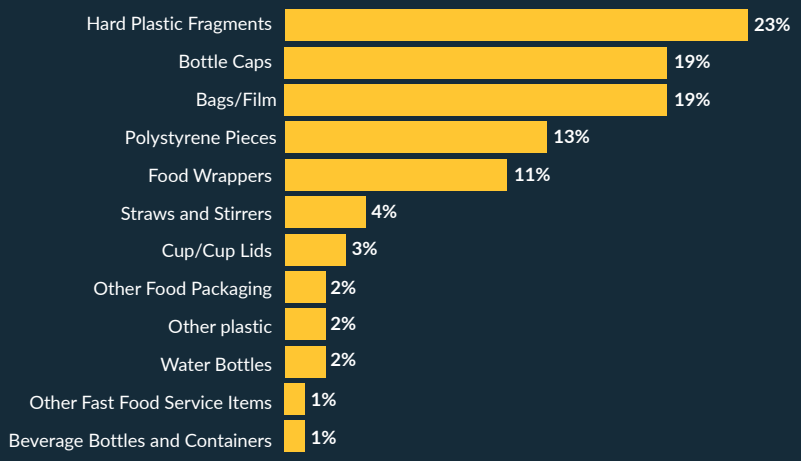
The US Environmental Protection Agency's (EPA's) **Escaped Trash Assessment Protocol** (ETAP) was used to characterize the litter collected in the traps. It helps us gain a better understanding of the types of litter prevalent in our ecosystems and how best to reduce their potential impacts. Using an existing protocol also helps ensure that the data collected are reliable and comparable and can be integrated into larger analyses to get a better picture of the issue.

Toronto, Ontario, Litter Snapshot

ETAP Major Category Breakdown



Plastic Items Breakdown



The Plastic Pollution Problem

As you can see, most of the litter found in the local streams is made up of plastic, and plastic is very persistent: it doesn't just decompose and disappear—instead, it travels. The journey of marine litter begins every time you drop trash on the ground, throw it out of a car window, or toss it off a boat. You can also create litter by accident if wind or wildlife move your discarded items to faraway places. Whether actively or passively, once litter is created, it enters the environment and begins its journey to the ocean.

These data paint a picture of the issue, giving us an idea of what needs to be addressed in the community. The more you dig into the data, the more clues you get. The condition of each of the items collected was noted, and we found that 18% of the litter in the waterways was still intact, 71% was partially intact, and the remaining 11% was degraded. This helps us estimate how long most of the litter had been in the waterway.

Plastic litter doesn't just disappear, it slowly breaks down over time into smaller pieces. Wind, waves and UV rays damage the plastic and break it down into tiny pieces called microplastics, which remain in the environment. Microplastics have been found in almost all marine and coastal environments, from surface water to the seabed, and from sandy beaches to Arctic ice.

The Power of Community Science

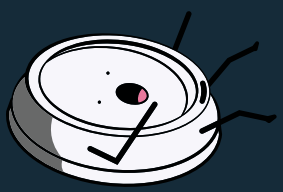
In the summer of 2023, community volunteers participated in two citizen-science activities: a community cleanup event organized by the University of Toronto Trash Team in collaboration with Don't Mess with the Don, and a Trash Trap Dive organized by the University of Toronto Trash Team in collaboration with Toronto Inner Harbour Floatables Strategy partners.

During these events, volunteers learned about waste collection and characterization protocols, local sources of plastic pollution as well as how litter can travel from local creeks and storm drains to Lake Ontario, into the St. Lawrence River, and end up in the Atlantic Ocean.

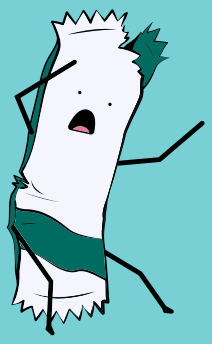
Results from the community science activities:

93 community volunteers involved

34 conversations with community members at the outreach table



50 trash bags filled



Do you think there are differences

between the main types of litter caught in traps compared to the litter collected during cleanups or community science activities? Trash Traps catch litter floating in the water, while most of the material collected during community cleanups is picked up on land.

You are more than just a drop in the ocean!

What can you do?

- Participate in a cleanup event: Follow the University of Toronto Trash Team and "Don't Mess with the Don" to find out about upcoming events in the Toronto area.
- Organize your own cleanup activity: You can find a step-by-step guide to organizing your own event in the CEC publication, Reducing Marine Litter Through Local Action.
- Check the Last Stop: The Ocean website for more information on marine litter and on how you can contribute to reducing marine litter in your community.

Tip **Log the litter you collect in the Marine Debris Tracker <debristracker.org> to contribute to the open dataset so researchers have access to the information needed to inform solutions.**

This activity is part of a trinational project supported by the Commission for Environmental Cooperation under the guidance of Environment and Climate Change Canada, to raise public awareness about the flow of litter downstream to the ocean. Litter capture devices have been deployed in streams in two other inland communities in Mexico and the United States. For more information, please visit:

http://www.laststoptheocean.com/pilotCities

Last Stop: The Ocean The Trash Can

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