Last Stop: The Ocean

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Quad Cities Litter Snapshot

The Quad Cities in Iowa and Illinois are located along the banks of the Upper Mississippi River. In 2022, litter traps were installed and maintained at three locations in Davenport, Iowa over a period of four months. These in-stream 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 the Quad Cities Are Far from the Ocean?

Most litter found in the ocean originates on land. In other words, marine litter is mostly regular land litter—everyday household or take-out items that travel by wind and water before reaching their last stop, the ocean. In the case of the Quad Cities, local litter can enter streams and storm drains before flowing into the Mississippi River and catching a ride downstream into the Gulf of Mexico.

Osprey Initiative installed traps, including the Litter Gitter pictured above, at 3 sites in Davenport: Goose Creek at the Gaines/Scott Pedestrian Bridge, Silver Creek at 49th Street, and Duck Creek at Marquette Street. Source: Osprey Initiative

Quick Figures

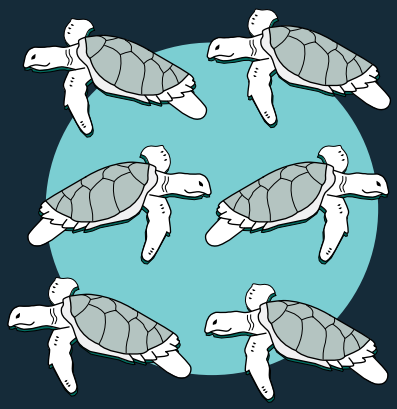
476 lbs

of trash were removed from Davenport's streams over the course of the four-month pilot project in 2022.

To put that in perspective that is the weight of about

120 Mississippi River channel catfish

or



6 adult Kemp's ridley sea turtles

Catfish are an iconic Mississippi river fish. A recent study found microplastics in all fish species studied at sites from the Upper to the Lower Mississippi River.[1]

The **Kemp's ridley sea turtle** is an endangered species found primarily in the Gulf of Mexico. According to NOAA, these turtles can mistake marine litter for food and ingest it.

1. Gad, A., K. Toner, M.C. Benfield & S.R. Midway. 2023. Microplastics in mainstem Mississippi River fishes. *Frontiers in Environmental Science*. https://doi.org/10.3389/fenvs.2022.1065583

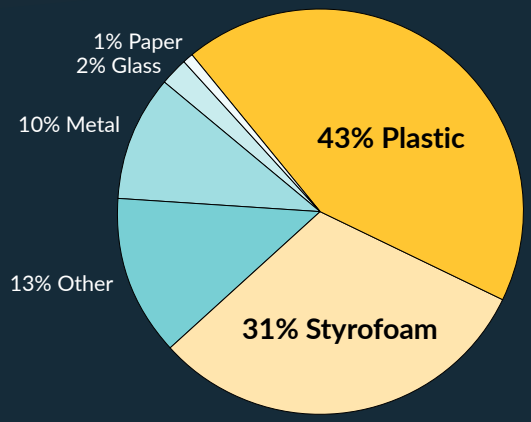
What did we find?

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. The ETAP is a tried and tested methodology that helps us get a better understanding of the types of litter that are prevalent in our ecosystems, and how best to reduce potential impacts. Using an existing protocol also helps ensure that the data collected are reliable and comparable. In this way, they can be integrated into larger analyses to get a better and bigger picture of the issue.

Davenport, IA, Litter Snapshot

ETAP Major Category Breakdown



Plastic and Styrofoam Breakdown

The Plastic Problem

As you can see, most of the litter found in the local streams is made of plastic, and plastic is very persistent: it doesn't just decompose and disappear—instead, it travels. Marine litter's journey 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 and 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 49% of the litter in the waterways was intact, 37% was partially intact, and the remaining 14% was degraded. This helps us estimate how long most of the litter had been in the waterway.

Plastic litter doesn't just disappear, over time it slowly breaks down into smaller pieces. Wind, waves and UV rays damage the plastic and transform it into tiny bits 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.

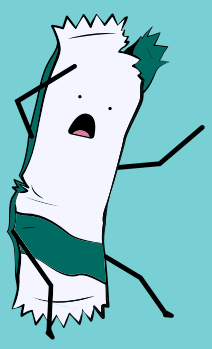
The Power of Community Science

In October 2022, volunteers from the Quad Cities community participated in a citizen-science activity during an Xstream Cleanup event. Volunteers logged the litter they picked up in the Marine Debris Tracker app. This app is a tool that engages volunteers in community science, allowing large numbers of people to contribute to science and learn about environmental issues in their community. During the event, **3,447 pieces of litter** were collected and logged in the Quad Cities area. See the top 5 items logged during the event below.

Top 5 Litter Items

from the Community Science Activity (October 2022)

Do you notice differences



between the main types of litter caught in the traps compared to the litter collected during the community science activity? The traps catch litter floating in the water column, while most of the material collected during the community cleanup is picked up on land. How do you think the buoyancy of a piece of litter impacts its transport through watersheds? What types of land-based litter would you expect to see in the ocean?

You are more than just a drop in the ocean!

What can you do?

- Join the discussion: As part of the Mississippi River Plastic Pollution Initiative, workshops will be taking place in the coming months to discuss the data and identify potential solutions. Keep an eye out for more information! Check the Last Stop: The Ocean website and Xstream Cleanup for more information.
- Participate in a cleanup event: Follow Xstream Cleanup to find out about upcoming events in the Quad Cities area.

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

This project is part of a trinational initiative supported by the Commission for Environmental Cooperation to raise public awareness about the flow of litter downstream to the ocean. Litter capture devices are being deployed in streams in two other inland communities in Canada and Mexico. For more information, please visit:

http://www.laststoptheocean.com/pilotCities.

Last Stop: ~~The Ocean~~ The Trash Can

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