Understanding Microplastics:
Procedural Framework for Microplastic Recovery and Identification in Urban Catchment Deposits

Why Microplastics Matter

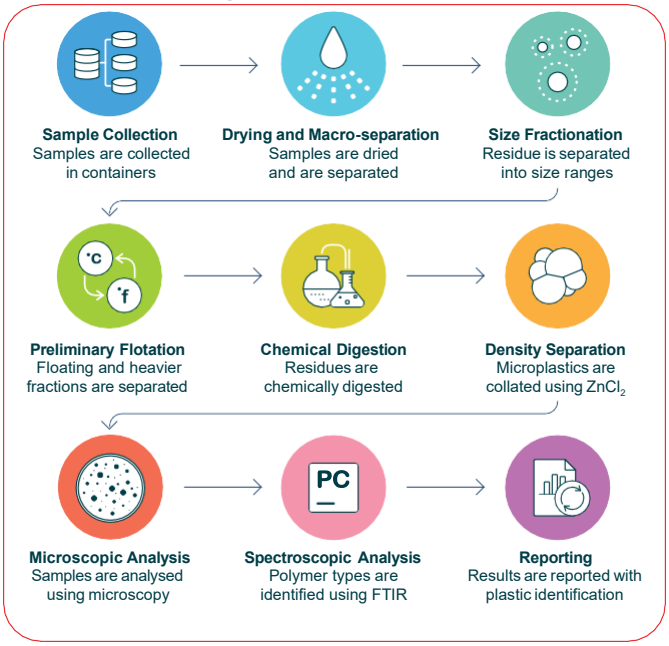
Urban stormwater runoff is a major untreated pathway carrying microplastics (<1 mm) from land-based activities into waterways. Variations in plastic generation and transport across industrial, commercial, and residential catchments underscore the importance of land-use-specific mitigation strategies.

Project Overview

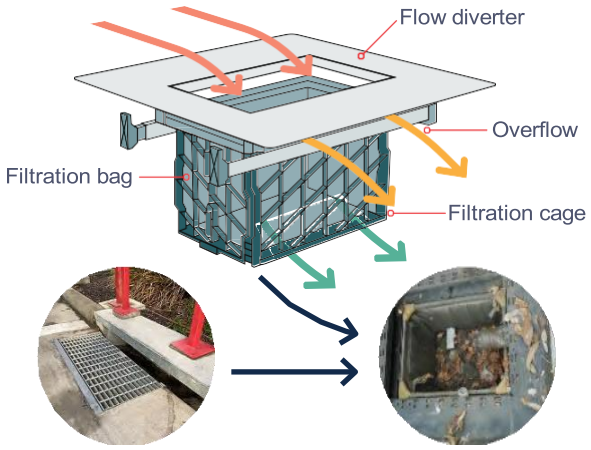
This project, in collaboration with Ocean Protect, developed a reliable method to identify microplastics captured in urban stormwater systems. Samples were collected from OceanGuard devices across industrial, commercial, and residential areas, providing real-world insight into plastic pollution at its source.

The work establishes a flexible workflow for reliable isolation of plastics and determines abundance of microplastic types and supports consistent monitoring aligned with national standards AS ISO 24187: 2025.

How the Analysis Was Done



Gully Pit Inserts (GPIs)



Challenges and Future Directions

Some practical challenges were identified during the study, including variable access to stormwater assets, differences in the amount of material collected between sites, and the time required to sort and identify microplastics. Natural materials such as leaves and soil also made separation more difficult in some samples.

Future improvements could include simpler, more automated methods and better data management to support routine monitoring. These advances would help councils and communities more easily track plastic pollution and support actions that protect local waterways.

Key Outcomes

- A tested and practical method for identifying microplastics in urban stormwater catchment assets
- Reliable workflow for isolation of plastics and the method prioritises identification over complete recovery, and well-suited for characterisation-based studies.
- Evidence-based information for determining types and abundance of plastics present in different usage environments.

The Sustainable Communities and Waste Hub is funded by the Australian Government under the National Environmental Science Program.

The complete report may be viewed at the following DOI:
https://doi.org/10.26190/unsworks/32376.
Alternatively, additional details are available on the Impact Priority 2 project page

Sustainable Communities and Waste
National Environmental Science Program