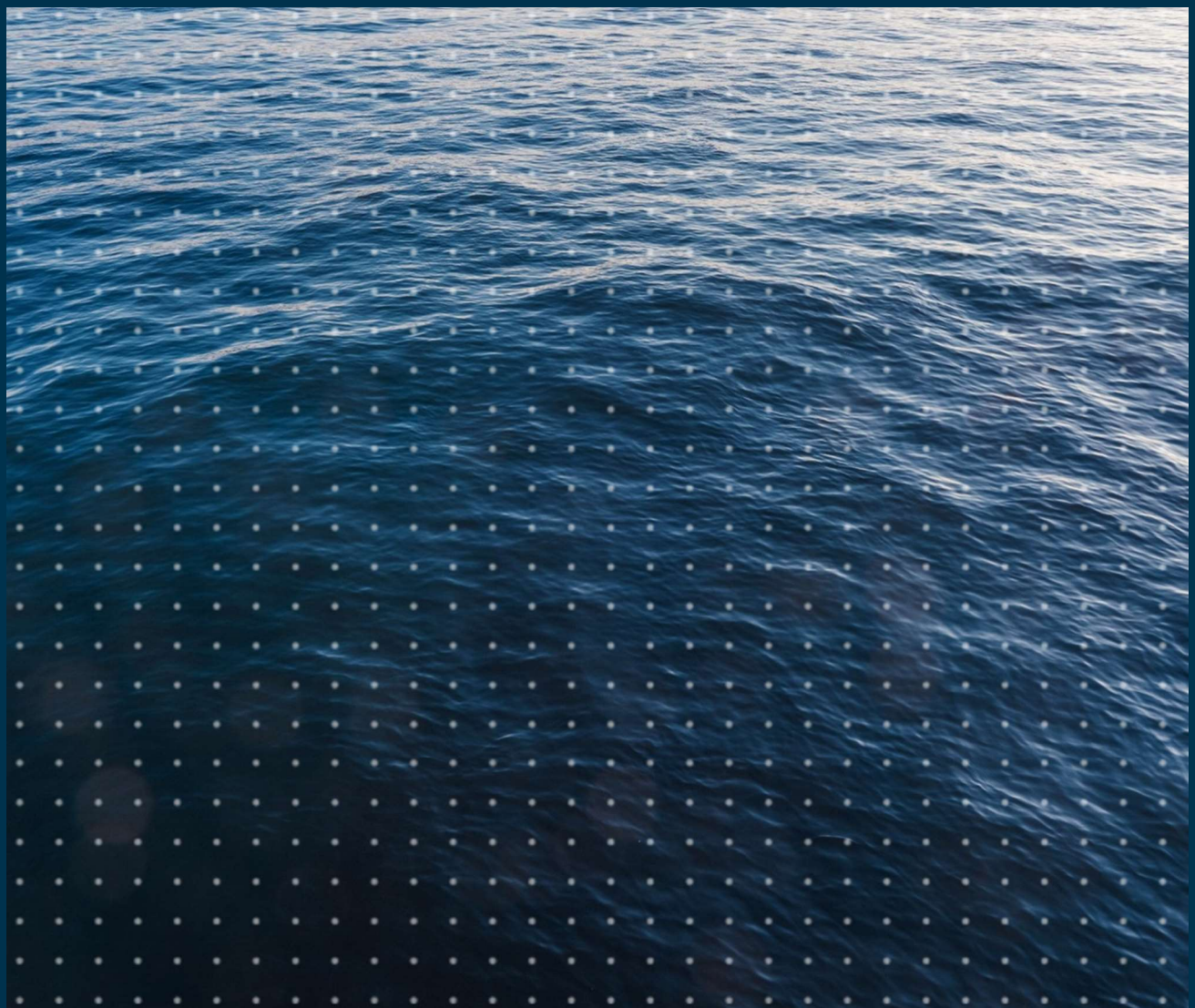
Environment Protection Authority

NSW litter report 2021–22



Published by:
NSW Environment Protection Authority
6 Parramatta Square
10 Darcy Street, Parramatta NSW 2150
Locked Bag 5022, Parramatta NSW 2124

Phone: +61 2 9995 5000 (switchboard)
Phone: 131 555 (NSW only – environment information and publications requests)
Fax: +61 2 9995 5999
TTY users: phone 133 677, then ask
for 131 555
Speak and listen users:
phone 1300 555 727, then ask for 131 555

Email: info@epa.nsw.gov.au
Website: www.epa.nsw.gov.au

Report pollution and environmental incidents
Environment Line: 131 555 (NSW only) or info@epa.nsw.gov.au
See also www.epa.nsw.gov.au

ISBN 978 1 XXXXXX XX X
EPA 20XXPXXXX
May 2023

Contents

Introduction

A key part of addressing the litter issue is having a good understanding of the amount of litter in the environment and the types of places it is found. This information is reported by the EPA in the *NSW Litter Report*, as required under section 146D of the *Protection of the Environment Operations Act 1997*. The Act requires the EPA to report estimates of the composition and quantity of litter types across NSW.

This report details

- overall litter quantities in NSW
- litter composition
- progress towards state litter targets
- the density of litter across litter monitoring locations.

Scope of report

The report presents litter data using the NSW Key Littered Items Study (the study). This is the first such report to use the study data. This report will focus primarily on litter data from 2022. It also includes data since 2018 which marks the start of the baseline year for current NSW litter prevention targets.

Further information about EPA litter data and associated targets can be found here https://www.epa.nsw.gov.au/your-environment/litter/data-and-targets

Report background

There have been six previous NSW litter reports (2004[1], 2006[2], 2008[3], 2010[4] one covering 2012–17[5] and one covering 2016-2020. The first two were based on litter surveys commissioned by the NSW Department of Environment and Climate Change. The last three reports have been based on the Keep Australia Beautiful National Litter Index. This latest report is based on the Key Littered Items Study.

The Key Littered Items Study

This is a long-term monitoring program that shows which types and quantities of marine debris can be found in NSW coastal and marine waters. The study started in 2017 and surveys are currently conducted quarterly. The study monitoring sites are

- in mangroves in urban estuaries
- on some remote beaches.

The sites span the full length of the NSW coast.

This report focuses solely on the estuarine counts. The study was conducted across 10 estuarine locations, described below in the report. Study data is collected by the Department of Planning and

[1] *NSW Litter Report 2004*, Department of Environment and Conservation NSW (DEC) 2004

[2] *NSW Litter Report 2006*, Department of Environment and Conservation NSW (DEC) 2006

[3] *NSW Litter Report 2008*, NSW Department of Environment, Climate Change and Water (DECCW) 2008

[4] *NSW Litter Report 2010,* NSW Department of Environment, Climate Change and Water (DECCW) 2010

[5] *NSW Litter Report 2012–2017*, NSW Environment Protection Authority (EPA) 2020

Environment's Coastal and Marine Science Division. It is entered into an EPA dashboard and analysed by the EPA Litter Prevention Unit.

To learn more about the study, please visit the Department of Environment and Planning's webpage on the project.[6]

New Australian Litter Measure

In 2017 litter program managers from all Australian states and territories identified a common need to develop an improved measure for litter. After an extensive review of the existing framework and inter-jurisdictional consultation in 2019, states and territories agreed to develop a new measure, known as the Australian litter measure.

The new measure will better inform policy in litter management and related issues such as plastic pollution and marine debris. This inter-jurisdictional initiative to develop and pilot the new measure began in December 2020 and is being progressively rolled out across all states and territories. The Australian Litter Measure will be a periodic land-based count of litter items using a consistent and rigorous methodology.

While not used in this report, eventually the Australian Litter Measure will be in place to act in a complementary way to the Key Littered Items Study, allowing integration of land-based litter measures with a marine measure.

[6] https://www.environment.nsw.gov.au/research-and-publications/our-science-and-research/our-research/water/coastal-and-marine-research-and-monitoring/marine-debris/key-littered-items-study

Litter and its impact

What is litter?

Litter is any solid waste object (disposable item or resource) that has been thrown, blown or left in the wrong place. It is the end outcome of an environmentally undesirable disposal action.[7]

Common litter items are drink containers (plastic and metal), cigarette butts, small pieces of paper, chip and lolly wrappers, fast-food packaging, bottle caps, plastic straws, and pieces of glass bottles. Litter also includes advertising and promotional material.

Litter impact

Litter damages local communities in a range of ways, including harming flora and fauna, lessening visual amenity, affecting health and safety, and reducing community pride. The presence of litter can also lead to other socially undesirable behaviours.

Table 1: The various impacts of litter[8]

Impact	Outcomes
Visual	Litter makes places look unsightly and uncared for and attracts more litter. This reduces the amenity of outdoor public space that is essential for community recreation and well-being.
Health	Sharp objects such as broken glass and syringes can injure people.
Social	The presence of litter makes it more likely that more serious antisocial behaviour (such as graffiti and property damage) will occur.
Environmental	Litter damages natural environments and harms wildlife, on land and in our waterways. Ingestion of plastic litter has been found to cause harm to animal populations.
Economic	Litter has heavy financial costs borne directly by the people of NSW. A 2016 MRA study estimated $167 million to $198 million a year is spent on cleaning up litter in NSW. Most of this money is spent by councils on behalf of their residents and ratepayers. Recent research (2022) found that litter costs NSW more than $500 million a year when indirect costs are included, e.g. loss of visual amenity.1
Resource	Easily recyclable resources, such as drink bottles, are lost when people litter.

[7] Community Change 2003, *Littering Behaviour Study V: National Benchmark 2002*, Beverage Industry Environment Council, Glebe, Sydney.

[8] *NSW Litter Prevention Strategy 2019–22*

NSW policy settings: waste and litter

Waste and Sustainable Materials Strategy

The *NSW Waste and Sustainable Materials Strategy 2041* outlines the actions the NSW Government will take to transition to a circular economy. These actions are backed by $356 million in funding to help deliver priority programs and policy reforms.

Key reforms include

- phasing out problematic single-use plastic items
- financial incentives for manufacturers and producers to design out problematic plastics
- having government agencies prefer recycled content
- mandating the separation of food and garden organics for households and selected businesses
- incentivising biogas generation from waste materials.

Litter Prevention Strategy 2022–30

The *NSW Litter Prevention Strategy 2022–30* (the strategy) builds on the foundation of an already effective strategic approach. In 2015 the NSW Government aimed to reduce litter by 40% by 2020. This was achieved in 2020 with a 43% reduction in litter volume. Building on this success, ambitious new targets have been set in the *Waste and Sustainable Materials Strategy 2041* and NSW Plastics Action Plan. These are:

- Target 1: 30% reduction in plastic litter items by 2025.
- Target 2: 60% reduction in all litter items by 2030.

To achieve these targets the NSW Government has provided $38 million for litter reduction programs under Stage 1 of the *Waste and Sustainable Materials Strategy 2041*. This litter prevention strategy outlines the significant steps that, together, we need to take to change our behaviour and reduce litter for the long term.

It sets out an integrated approach to litter prevention across seven elements, as shown in Figure 1 below.

Figure 1: The NSW Litter Prevention Framework 2022–30

Figure 1: The integrated *NSW Litter Prevention Strategy*

Results: litter data 2022 snapshot

2022 snapshot – litter composition by density

The 2021–22 Key Littered Item Study indicates total litter densities in NSW estuaries is 198 items per 1,000 m^2.

Most littered items

Figure 2 shows the top 10 most-littered items recorded by the study in 2021–22, by density.

Confectionary wrappers/snack bags and straws are the top two litter items, accounting for nearly a quarter of all litter.

The top 10 items account for 56% of all litter items.

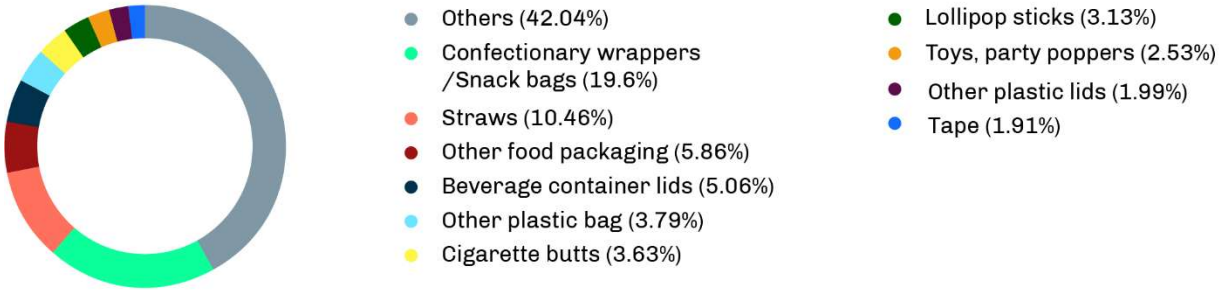


Figure 2 Composition of NSW litter density by individual item, 2021–22

Litter by category

All items have been grouped into similar categories, often based on how the items are used and consumed. Using these categories helps inform program and policy responses.

Figure 33 shows the categories of litter recorded by the study in 2021–22.

The takeaway and beverage and confectionary and snacks categories account for over 50% of all litter items.

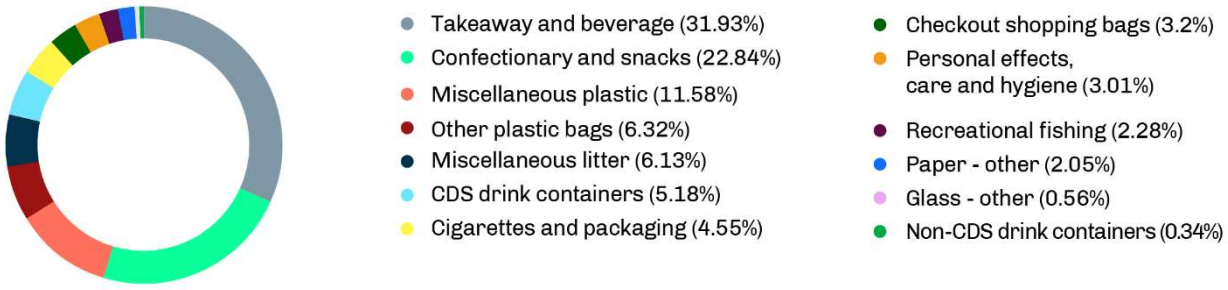


Figure 3 Composition of NSW litter density by grouped category, 2021–22

Litter by material

Figure 4 shows the material makeup of litter recorded by the study in 2021–22.

About 82% of the litter is plastic. It should be noted that the study was carried out in estuaries. Plastic litter is likely to predominate in an estuarine environment because paper-based litter is

susceptible to breaking up, and heavy litter, such as metal and glass, is more likely to sink. Land-based litter measures such as the National Litter Index, indicate that paper items can make up to 40% of the litter stream.

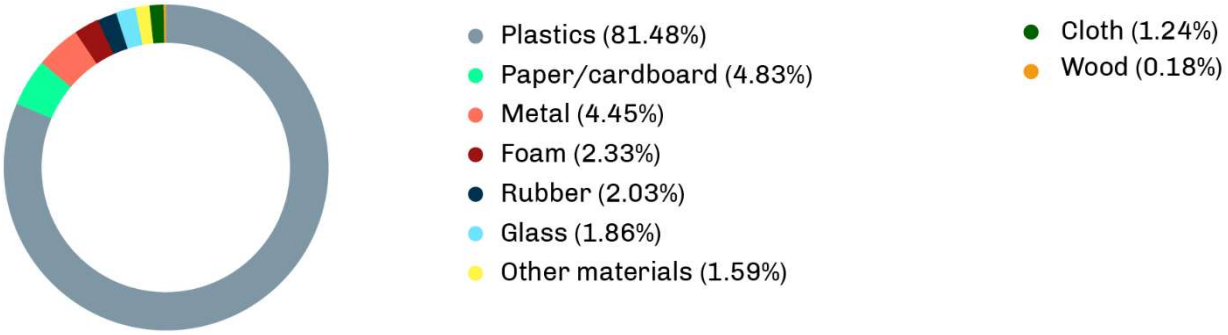


Figure 4 Composition of NSW litter density by material, 2021–22

2022 snapshot – litter composition by volume

The 2021–22 Key Littered Item Study indicates the total volume of litter in NSW estuaries is 18.48 litres per 1,000 m^2.

Most littered items

Figure 5 shows the litter item types recorded by the study in 2021–22, by volume.

Other food packages, water bottles (under 1 litre) and flavoured water/fruit juice drink/soft drink bottles (under 1 litre) are the top three most-littered item types, accounting for over 30% of all litter volume.

The top 10 individual items account for 58% of all litter by volume.

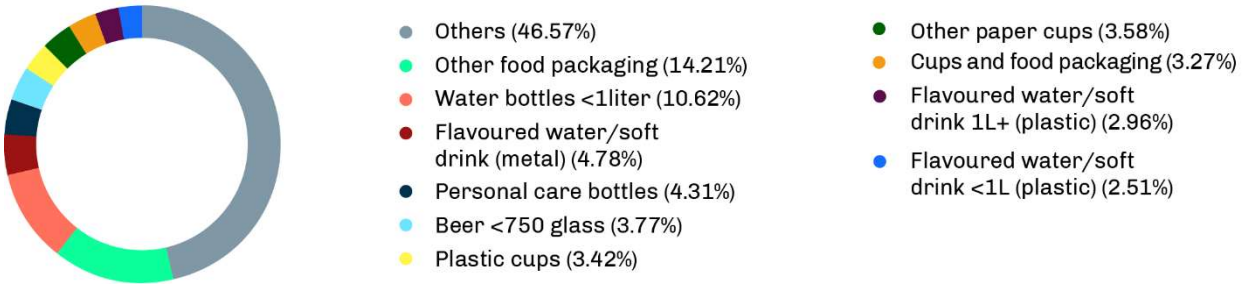


Figure 5 Composition of NSW litter volume by individual item, 2021–22

Litter by category

Figure6 shows the litter categories recorded by the study in 2021–22, by volume.

The container deposit scheme drink containers and takeaway and beverage categories account for more than 70% of all litter items by volume.

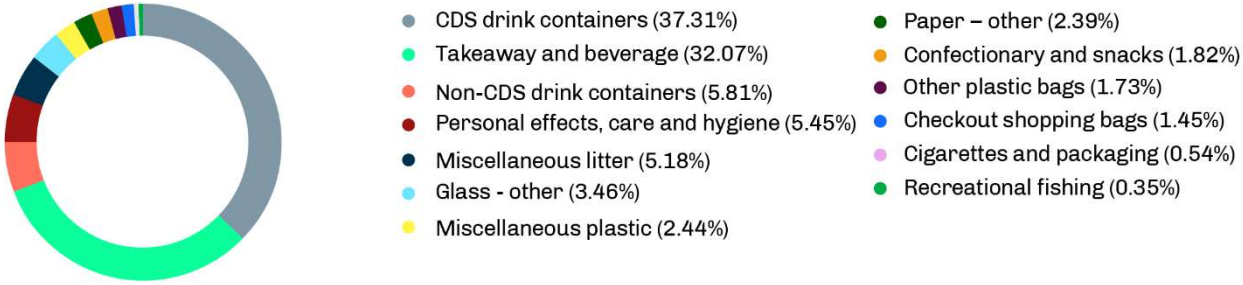


Figure 6 Composition of NSW litter volume by aggregated category, 2021–22

Litter by material

Figure 7 shows the material composition of the litter recorded by the study in 2021–22, by volume.

Over 67% of the litter was plastic. The next largest category was paper/cardboard (13%), followed by glass (10%).

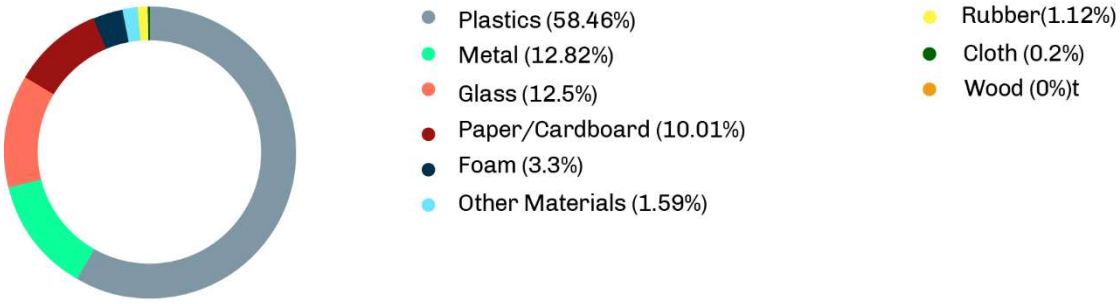


Figure 7 Composition of NSW litter volume by material, 2021–22

Results: litter data 2018–2022

As outlined above, the *Waste and Sustainable Materials Strategy 2041* and the *NSW Plastics Action Plan* have set two litter reduction targets for NSW. The baseline for these targets is the combined eight quarterly counts across 2018 and 2019 using the Key Littered Items Study.

The data below outlines progress towards these targets based on the 2018-2022 study data.

A note of caution when reading 2021-22 data:

The 2021-22 litter data indicates a sharp increase in litter levels from the previous year which is likely to be due to two key factors:

1. With community activity now returning to pre-Covid levels, litter rates have increased with reduced COVID-19 restrictions and surging community activity. There were notable and comparable decreases in litter in 2019-21 which were likely to be impacted by COVID-19 lockdowns which suppressed community activity.

2. The winter study count in 2021-22 was not completed due to the impact of major floods, and the 2021-22 data has therefore been averaged across the three completed seasonal counts. Of the four seasonal counts, winter usually comprises the lowest level of litter.

   With this seasonal adjustment, 2021-22 litter levels are likely to appear inflated in comparison to previous years.

Given that the new Waste and Sustainable Materials Strategy litter program started in July 2022, it is logical that the 2021-22 litter results would sit closely at baseline levels, as reflected in the outcomes reported below. In the coming years, it is expected that the litter data fluctuations seen recently will start to level out and decline. The forecast for 2022–23, based on early preliminary data, is for a 13% reduction from the baseline.

Progress towards targets

Target 1: 30% reduction in plastic litter items by 2025

In 2021–22, the number of plastic litter items per 1000 m^2 had increased by 1% since the baseline year (2018–19). Litter data is inherently variable and a single year's figures should be treated with caution.

Target 2: 60% reduction in all litter items by 2030

In 2021–22, the number of all litter items per 1000 m^2 had increased by 4% since the baseline year (2018–19).

As noted above, longer-term trend data is needed for a more accurate assessment of progress towards this target.

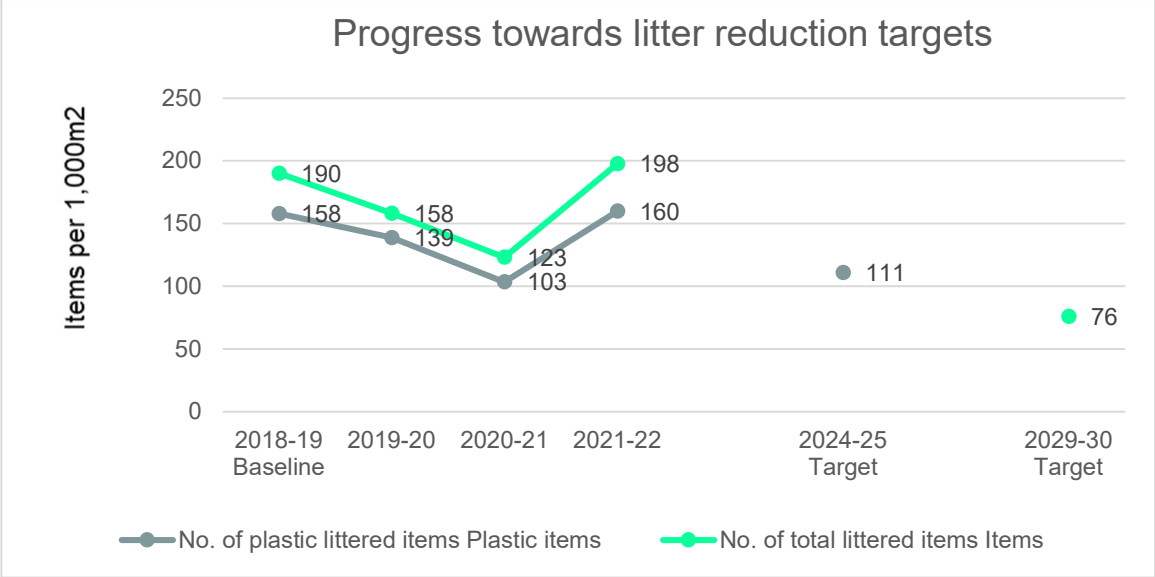


Figure 8 Progress towards NSW litter targets

Litter locations

The study monitoring sites are in mangroves in urban estuaries and are not associated with specific land-use sites such as retail precincts, parks or residential areas. Those land-use types will feature in the land-based Australian Litter Measure, which was piloted in 2021.

In 2021-22, there were 10 study survey locations:

- North Coast
  - Ballina, Coffs Harbour and Port Macquarie
- Mid Coast
  - Stockton, Taree
- Sydney
  - Muddy Creek (Arncliffe), Meadowbank (Ryde)
- South Coast
  - Batemans Bay, Merimbula, Narooma.

Location of litter by site

Figure 9 outlines the proportion of litter found across the different study survey locations.

As expected, areas with more people had more litter. The two Sydney sites accounted for over 75% of the litter. Table 1 shows the average levels of litter at each site per 1000 m^2.

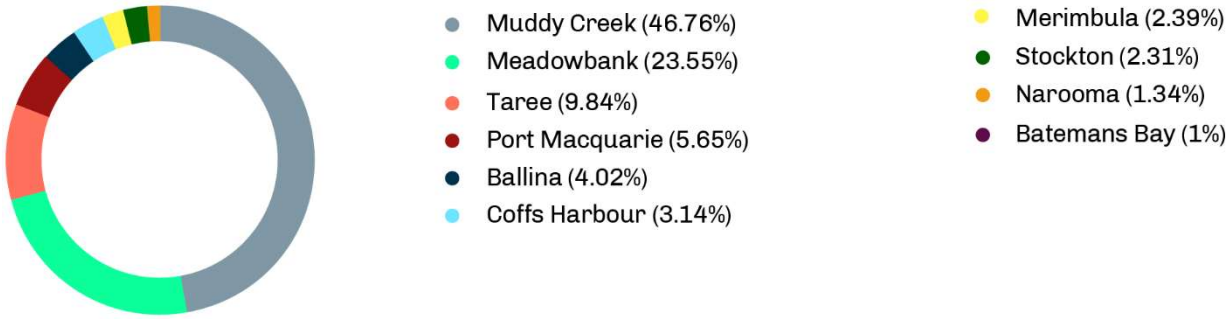


Figure 9 Litter levels across the 10 KLIS count sites (by density), 2021-22

Table 1 Average levels of litter per 1000 m^2, by site, 2021–22

Location	Average density (items per 1000m^2)	Average volume (litres per 1000m^2)
Muddy Creek	1146.90	97.77
Meadowbank	479.44	38.60
Ballina	99.24	13.38
Coffs Harbour	63.73	11.64
Port Macquarie	61.47	7.50
Taree	58.64	8.53
Merimbula	27.90	1.84
Stockton	24.40	2.63
Batemans Bay	8.63	1.31
Narooma	6.10	1.61