



Environment Protection Authority

2020–21 Key Littered Items Study NSW Report



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ISBN 978 1 922963 13 0

EPA 2022P3768

June 2022

Updated January 2023

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This report details the findings from the NSW Key Littered Items Study (KLIS) for 2020–21. It provides insight into the composition of litter found in estuaries along the NSW coast and details progress towards NSW litter reduction targets

The Key Littered Items Study

The Key Littered Items Study (KLIS) 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 KLIS started in 2017 and surveys are currently conducted quarterly. The KLIS 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 KLIS is currently conducted across 10 estuarine locations, described below.

KLIS data is collected by the Department of Planning and 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 KLIS, please visit the Department of Environment and Planning's [webpage on the project](#).¹

Purpose of this report

The KLIS is used to track litter across NSW and assess the performance of NSW litter programs. KLIS reports will be published annually and will:

- show progress towards targets
- inform litter prevention program and policy responses.

NSW litter targets

NSW litter reduction targets are outlined in the *Waste and Sustainable Materials Strategy 2041* and the *NSW Plastics Action Plan*. They are:

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

These targets focus on tracking litter loads by **items**, whereas previous NSW targets focused on **volume**.² This report gives details of both items and volume.

Land versus marine litter counts

The NSW litter data framework uses a range of data to inform litter programs. Up to 2020 the EPA relied on the National Littered Index (NLI), a land-based litter measure. The KLIS is now the key monitoring program.

¹ <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>

² The former Premier's Priority target to reduce litter volume by 40% by 2020 was achieved with a 43% reduction in litter volume from the baseline year 2013–14. With volume now substantially reduced, the NSW Government has set item-based targets to ensure a renewed focus on small, problematic litter items that are more likely to leak into the environment and waterways.

KLIS counts litter in urban estuaries, collecting samples from mangroves that act as natural litter traps and have a higher concentration of litter than nearby urban areas. KLIS can provide richer detail on litter than the NLI, and a fuller picture of loads and composition.

The Australia Litter Measure (AusLM) will replace the NLI as a new land-based count of litter from 2022 onwards. It has been designed to be more easily related to the estuarine litter data that the KLIS samples, and to provide a fuller understanding of the movement of litter from land to sea.

2020–21 KLIS results

High-level findings

- The number of littered items has reduced by 22% since 2019–20 (from 158 items per 1000 m² to 123 items per 1000 m²).
- The volume of litter has reduced by 14% since 2019–20 (from 12.76 litres per 1000 m² to 10.98 litres).
- The number of plastic littered items has reduced by 25% since 2019–20 (from 138 items per 1000 m² to 103 items per 1000 m²).
- The volume of plastic litter has reduced by 8% since 2019–20 (from 7.68 litres per 1000 m² to 7.05 litres).
- By category, **takeaway and beverage items** (31.93%) are the biggest contributor to litter items in NSW, followed by **confectionary and snacks** (22.84%).
- **CDS eligible beverage containers** (37.31%) are the biggest contributor to litter volume, followed by **takeaway and beverage items** (32.07%).
- **Confectionary wrappers and snack bags** (19.6%) were found to be the most-littered item, followed by straws (10.46%).
- By material, plastic items accounted for the largest number of items (81.48%) and volume (58.46%).

Progress towards litter reduction targets

Baseline and targets

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 KLIS.

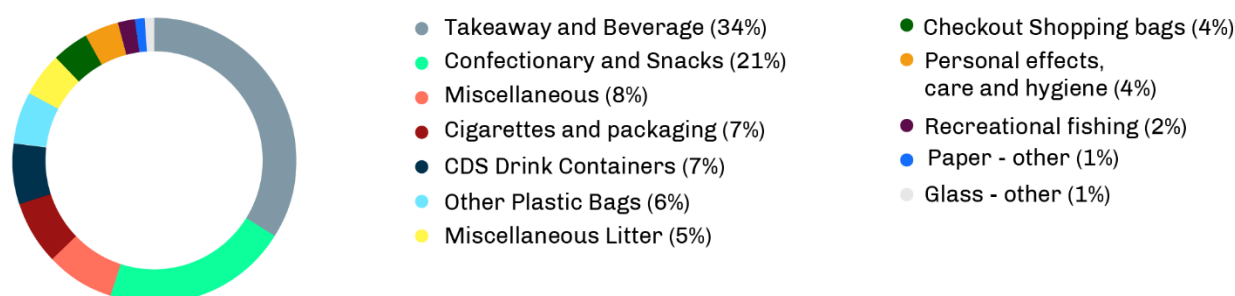


Figure 1 Baseline litter composition by category (items), 2018 and 2019 data

Table 1 Litter reduction baseline and targets

Target	Baseline (2018 + 2019)	Target value
30% reduction in plastic litter items by 2025	158 items per 1000 m ²	111 items per 1000 m ² (by 2024–25)
60% reduction in all litter items by 2030	190 items per 1000 m ²	76 items per 1000 m ² (by 2029–30)

Progress towards targets

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

In 2020–21 plastic litter items had reduced by 35% since the baseline year (2018–19).

This result suggests that the 2025 target has already been achieved. However, litter data is inherently variable and a single year's figures should be treated with caution, particularly as COVID-19 lockdowns may have reduced littering. Long-term trend data will provide a more accurate picture.

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

In 2020–21 all litter items had reduced by 35% since the baseline year (2018–19).

As noted above, long-term trend data is required to provide a more accurate assessment of progress towards this target.

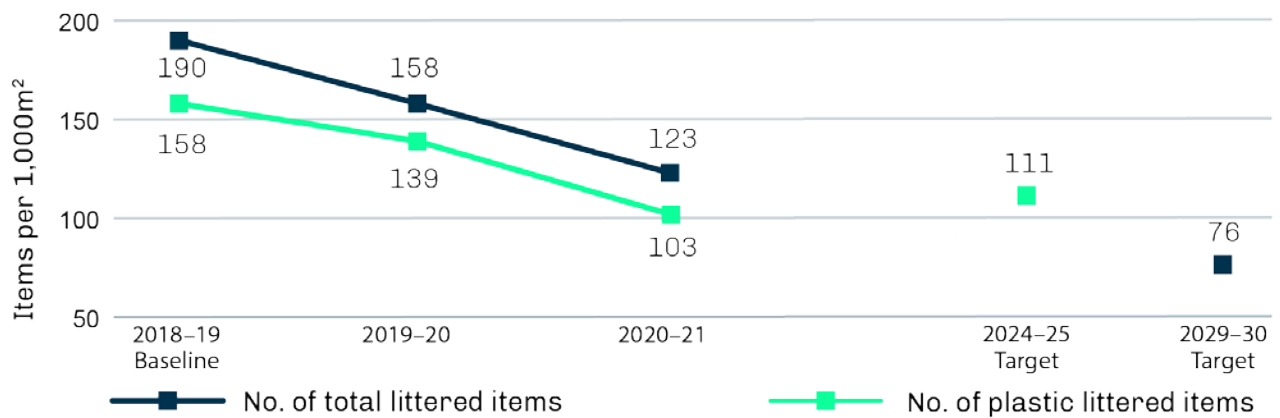


Figure 2 Progress towards NSW litter targets: litter items per 1000 m²

Litter composition by items

The graphs in this section show the composition of litter data recorded by the KLIS in 2020–21.

Most-littered items

Figure 3 shows the top ten most-littered items recorded by the KLIS in 2020–21.

Confectionary wrappers and snack bags, straws and **other food packaging items** are the top three litter items, accounting for nearly a quarter of all litter.

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

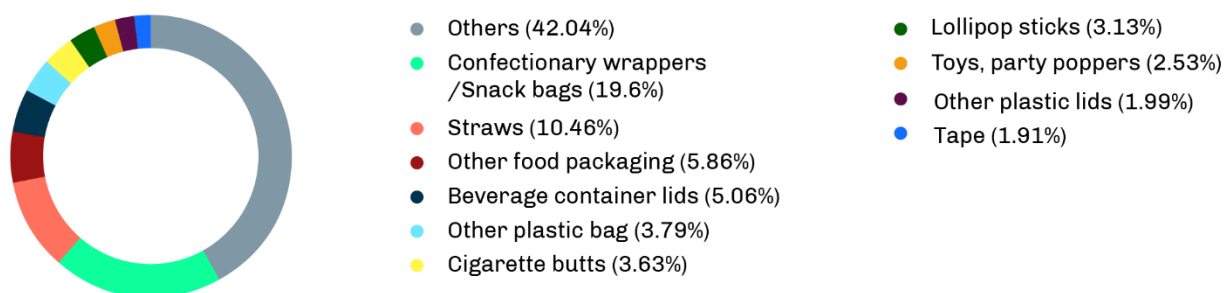


Figure 3 Composition of NSW litter by item, 2020–21

Litter by category

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

Figure 4 shows the categories of litter recorded by the KLIS in 2020–21.

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

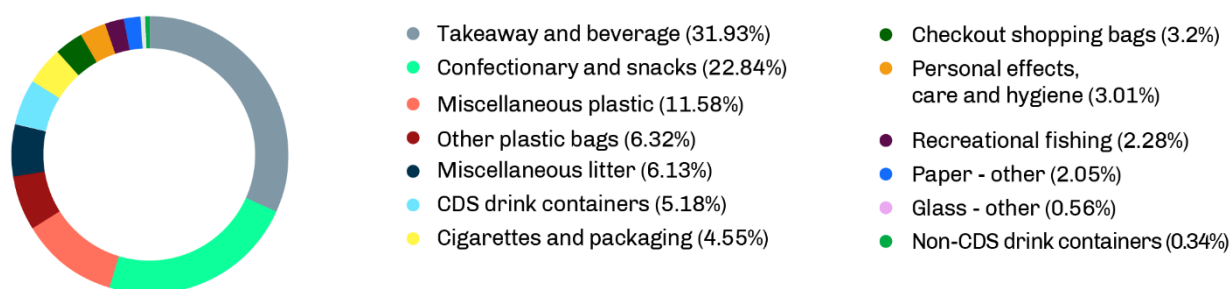


Figure 4 Composition of NSW litter by category, 2020–21

Litter by material

Figure 5 shows the material makeup of litter recorded by the KLIS in 2020–21.

Over 80% of the litter is plastic. It should be noted that the KLIS 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 measure such as the National Litter Index indicate paper items can make up to 40% of the litter stream.

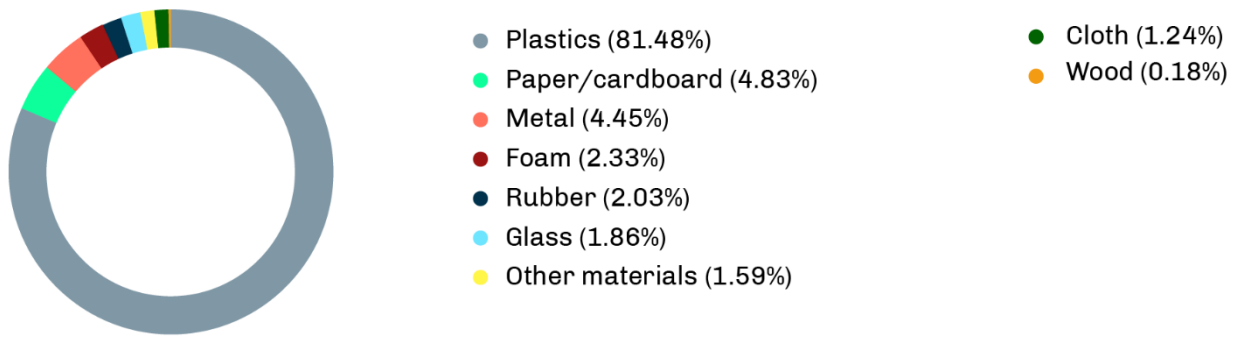


Figure 5 Composition of NSW litter by material, 2020–21

Litter composition by volume

Most-littered items

Figure 6 shows the litter item types recorded by the KLIS in 2020–21, by volume.

Other food package, water bottles (under 1 litre) and flavoured water/soft drink bottles are the top three most-littered item types, accounting for nearly 30% all litter.

The top 10 item types account for 54% of all litter by volume.

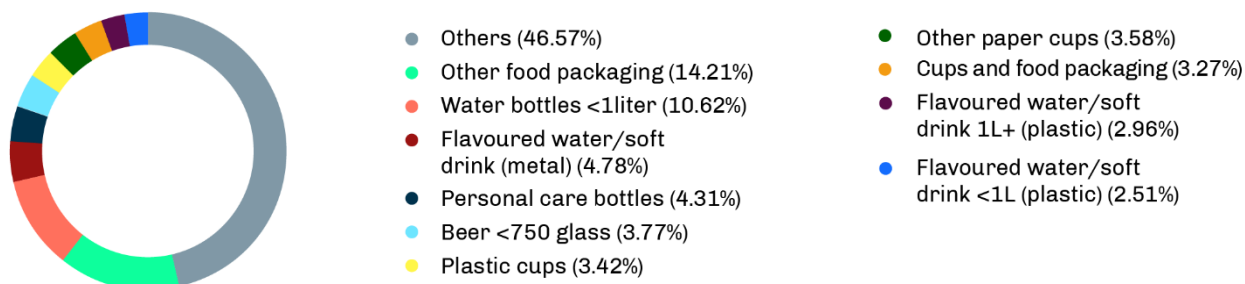


Figure 6 Composition of NSW litter by item type (by volume), 2020–21

Litter by category

Figure 7 shows the litter categories recorded by the KLIS in 2020–21, by volume.

The **CDS beverage containers** and **takeaway and beverage** categories account for nearly 70% of all litter items by volume.

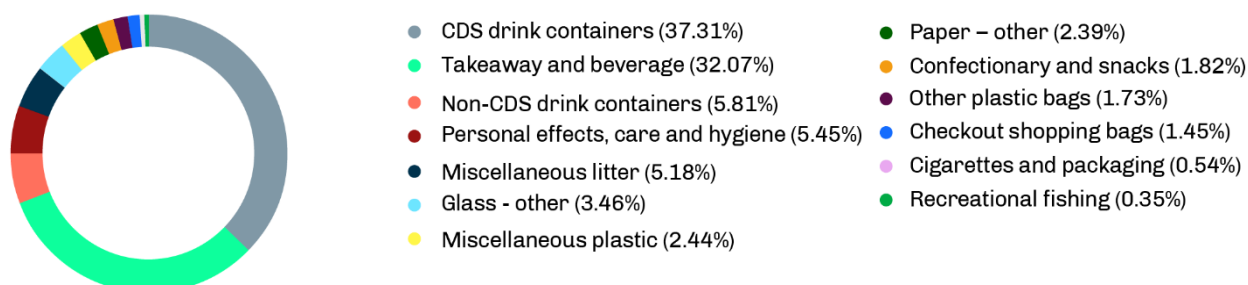


Figure 7 Composition of NSW litter by category (by volume), 2020–21

Litter by material

Figure 8 shows the material composition of the litter recorded by the KLIS in 2020–21, by volume.

Over 58% of the litter was plastic. The next-largest categories were glass and metal (12% each).

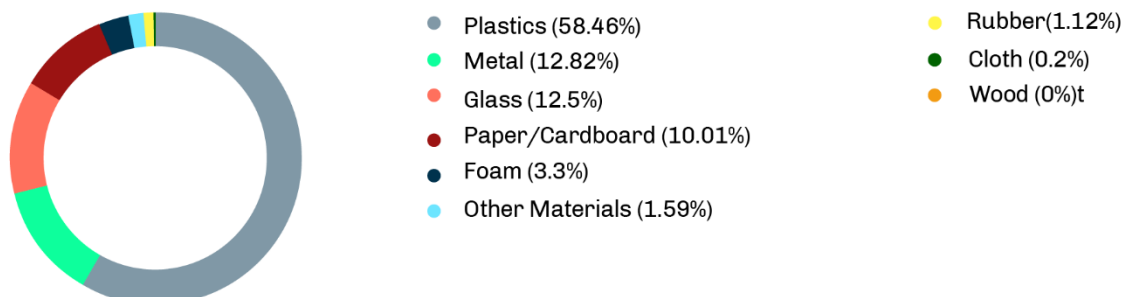


Figure 8 Composition of NSW litter by material (by volume)

CDS beverage container litter snapshot

In November 2017 the NSW Government introduced the *Return and Earn* container deposit scheme to reduce beverage container litter. The KLIS was introduced in early 2017 to evaluate how well the scheme reduced beverage container litter entering the marine environment.

2020–21 CDS litter

- In 2020–21 CDS litter accounted for 5.18% of the total litter items and 37% of total litter volume.
- The number of CDS littered items fell by 9% from 2019–20 to 2020–21.
- The volume of CDS litter in NSW in 2020–21 fell by 6% from 2019–20 to 2020–21.
- Since *Return and Earn* was introduced in 2017, eligible CDS beverage container litter has fallen in both the number of items (by 54%) and in volume (by 52%).

Top ten CDS litter items

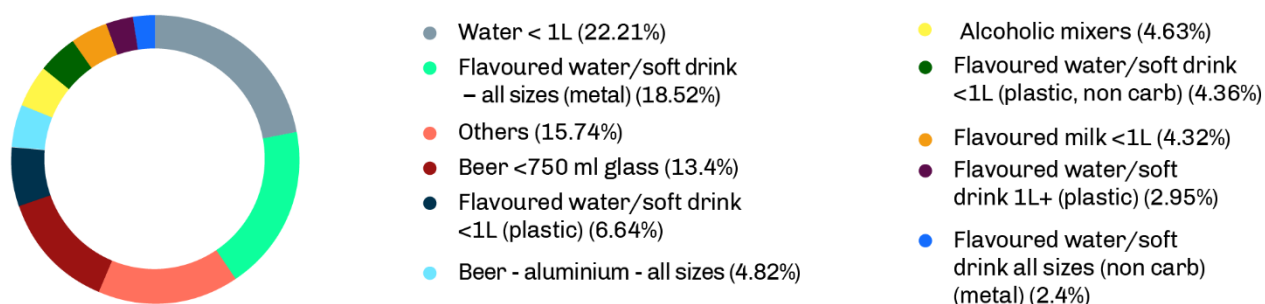


Figure 9 Top ten CDS littered items, 2020–21

Litter location

The KLIS 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.

There are currently 10 KLIS 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 10 outlines the proportion of litter found across the different KLIS survey locations.

As expected, areas with more people had more litter. The two Sydney sites accounted for over 70% of the litter. Table 2 shows the average levels of litter at each site per 1000 m².

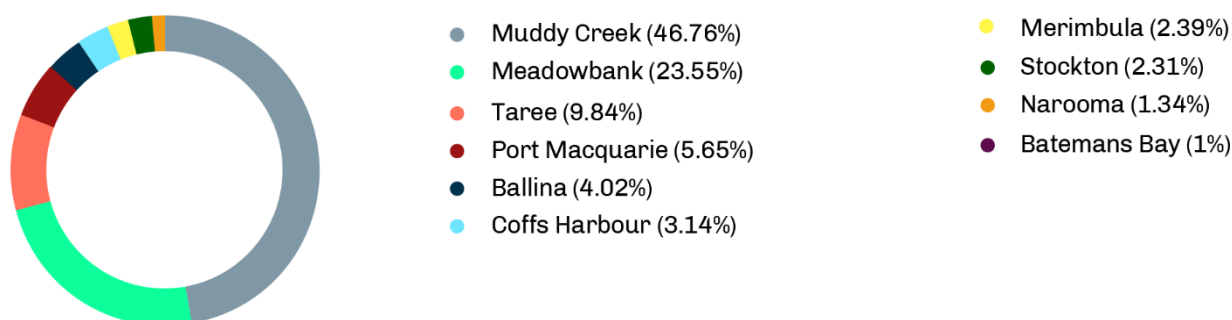


Figure 10 Litter levels across the 10 KLIS count sites (by items)

Table 2 Average levels of litter per 1000 m², by site, 2020–21

Location	Average number of items	Average volume (litres)
Muddy Creek	773.38	64.21
Meadowbank	292.47	14.57
Taree	70.09	4.84
Port Macquarie	67.65	13.23
Ballina	61.82	8.38
Coffs Harbour	56.75	9.49
Merimbula	33.29	1.93
Stockton	29.53	1.35
Narooma	19.60	3.46
Batemans Bay	7.28	0.95