2019 | WA Marine Debris Report

Tackling marine debris impacting the Western Australian coastline and marine environment











Tangaroa Blue Foundation would like to acknowledge the First Nations people as the Traditional Owners of country across Australia and recognise their continuing connection to land, waters and culture. We pay our deep respects to all Elders past, present and emerging.



Prevelly Beach, near Margaret River, WA

Contents

Introduction	5
WA NRM regions	6
Where marine debris is accumulating across WA	6
NRM region data guide	9
Top 10 items	9
Land and Sea Source Index (LSSI)	9
Clean-up details, top 3 materials and LSSI	9
Wildlife	9
NRM region data results	10
South Coast	11
South Coast Clean-up Sites	12
Items and sources – South Coast - Coastal beaches away from built areas	13
South West	14
South West clean-up sites	15
Items and sources – South West - Coastal beaches in built areas	16
Items and sources – South West - Coastal beaches away from built areas	17
Peel-Harvey	19
Peel-Harvey clean-up sites	20
Items and sources – Peel-Harvey - Coastal beaches in built areas	21
Items and sources – Peel-Harvey - Coastal beaches away from built areas	22
Items and sources – Peel-Harvey – Inland waterways	23
Perth	25
Perth clean-up sites	26
Items and sources – Perth - Coastal beaches in built areas	27
Items and sources – Perth – Inland waterways	28
Northern Agricultural	30
Northern Agricultural clean-up sites	31
Items and sources – Northern Agricultural - Coastal beaches in built areas	32
Rangelands	33
Rangelands clean-up sites	34
Items and sources – Rangelands (North) - Coastal beaches in built areas	35
Items and sources – Rangelands (North) - Coastal beaches away from built areas	36
Indian Ocean Territories	37
Indian Ocean Territories – Christmas Island	38
Items and Sources – Christmas Island - Islands	39
Contributors and acknowledgements	41

Introduction

The **2019 WA Beach Clean-up** marked the 15th year of this special event in the Tangaroa Blue Foundation calendar, with support from Keep Australia Beautiful WA. Hundreds of people from across the community spent over 2638 volunteer hours participating, from dedicated environmental groups, to workplace teams, businesses and groups of families and friends.

Since 2004, on and around the middle weekend of October, beaches, estuaries and coastal areas across Western Australia have been cleaned up and vital data entered into the Australian Marine Debris Database to contribute to understanding, monitoring and managing marine debris. In 2019 beaches from the Anjo Peninsula Beach, Mungalalu in the north of the state to Kanidal Beach near Cocklebiddy on the south east coast; to wild coastal tracks and easy to access metropolitan beaches were included in the project.

Tangaroa Blue Foundation (TBF) encourages a whole of landscape approach for addressing the marine debris issue. TBF defines the term 'marine debris' in a broad sense that includes man-made waste, litter and debris in any oceanic, coastal, inland water and shoreline environment.

Marine debris data from beach clean-ups have been presented in this report in the context of the six coastal natural resource management regions (NRM) in Western Australia and the Indian Ocean Territories. Different regions have different sources of debris and therefore different approaches to management will be appropriate. This year data has been categorised according to land or sea sources for beaches that are either near to or far from built up areas and for inhabited and uninhabited islands.

Managing local inputs of waste and litter contributing to marine debris are fundamentally different to those needed for managing offshore inputs of debris onto our coasts. A river catchment captures waste and litter from built areas with drainage systems and rivers conveying the debris load to the sea. By considering the litter and waste processes occurring across the whole landscape, more effective strategies can be developed. Sources of marine debris from offshore are shipping, fishing and the background debris load in the oceans which is circulated by ocean currents over vast distances. Government and industry policies address these issues and regional feedback about effectiveness is recommended.

WA NRM regions



Where marine debris is accumulating across WA

Tables and Figures 1 and 2 show the density of debris for each coastal type within each NRM. The results from the 2019 clean-up event are presented in Table 1 and Figure 1. Table 2 and Figure 2 show density results from the period 2014 - 2018, derived from all clean-up data in that period. The graphs and tables use items per kilometre of beach cleaned as a measure of marine debris density. The density is averaged for clean-up events occurring within the different coastal categories in each NRM region and for the two timeframes. The coastal categories are:

- a) coastal beaches in built areas
- b) coastal beaches away from built areas
- c) islands
- d) Inland waterways

Table 1:Item density per km of beach cleaned by NRM regionWA Beach Clean-up 2019

WA Beach Clean-up 2019 – Items per km - Data									
	South Coast	South West	Peel- Harvey	Perth	Northern Agricultural	Rangelands	Indian Ocean Territories		
Coastal beaches in built areas	198	653	258	1214	142	118	Islands only		
Coastal beaches away from built areas	No data	249	251	No sites	No counts of data	46(North) 3(South)	Islands only		
Islands	No data	29	No sites	No data	No data	No data	27310		
Inland waterways	No Data	No Data	298	4705	No Data	No Data	Islands only		

Table 2:Item density per km of beach cleaned by NRM regionWA 2014 - 2018

WA Beach Clean-up 2014 - 2018 – Items per km - Data									
	South Coast	South West	Peel- Harvey	Perth	Northern Agricultural	Rangelands	Indian Ocean Territories		
Coastal beaches in built areas	274	295	458	1295	364	191	Islands only		
Coastal beaches away from built areas	287	294	173	No sites	389	43	Islands only		
Islands	No data	29	No sites	406	663	99	32074		
Inland waterways	No data	232	474	1639	474	No data	Islands only		



Conto Spring near Margaret River



Figure 1: Comparison of marine debris density by NRM region and coastal type WA Beach Clean-up 2019

Figure 2: Comparison of marine debris density by NRM region and coastal type WA 2014 - 2018



NRM region data guide

Each NRM region is given a separate section below, which contains a page showing a map of clean-up sites and a graph that will track the density of marine debris (items per km) across different clean-up location categories. Subsequent pages, one for each location category, provide data and information on the following:

Top 10 items

The types of items and their probable onshore and offshore sources provide information for developing Source Reduction Plans. The table showing the top 10 items is colour-coded to differentiate between items that have a high probability of coming from local land sources and those with a high probability of coming from offshore sources such as shipping, fishing, and ocean current-borne debris. The sites from which the 2019 WA Beach Clean-up data was collected are listed in the right-hand column of this table.

Land and Sea Source Index (LSSI)

Onshore and offshore sources of marine debris are calculated using the AMDI Land and Sea Source Index (LSSI) which is not a direct measurement but a tool for providing an estimate of the land and sea components of beach debris. The LSSI concept makes use of the fact that different items behave differently in the coastal and marine environment. This difference of behaviour is based on the physical properties of items including form, material composition, buoyancy etc. House bricks and bicycles found on a beach are much less likely to have floated ashore than fishing buoys. Some items quickly lose their form, sink or snag and therefore do not or cannot travel far. Other items drift to a greater or lesser extent and some items such as lidded plastic water bottles and polystyrene foam travel great distances relatively quickly. These differences are sorted into six Dispersion Categories. The underlying principle involves estimating the (subjective) probability that items grouped under any of the dispersion categories have a local source. (A local source can be direct littering, litter escaping nearby drains or any other local land-based action resulting in loss into the environment). The LSSI therefore estimates the proportion of the total debris collected that is likely to have a land source and this can range from 100% to 0%.

Clean-up details, top 3 materials and LSSI

The second table shows the number of clean-ups, the total items removed, and the weight of items removed for the location category, then the top 3 materials and finally the LSSI percentages. The rows below show the historic (2014-2018) data. It is important to note that due to marine debris loads and volunteer capacity at each event, not all items removed during community clean-up events may have been recorded into the AMDI Database. In these cases, an accepted sample methodology was used to record minimum volumes of marine debris data.

Wildlife

Marine debris is a major threat to the health of marine environment in Western Australia and can injure and kill marine life such as turtles, dugongs, dolphins, and seabirds, as well as impacting corals and other reef ecosystems. Observations of dead animals are noted in the opening text of each NRM region's section. These recordings are anecdotal with a small number indicating the possibility of marine debris playing a role, mostly due to entanglement in nets. Proper scientific assessment is needed to identify the cause of death of wildlife and this does not usually occur for sightings during beach clean-ups.

NRM region data results



Hillview beach near Augusta, South West WA

South Coast

The South Coast NRM region has a long coastline which is largely sparsely populated. It typically has a high proportion of plastic items largely sourced from offshore, including commercial fishing waste. The Leeuwin Current conveys debris and fishing gear mainly from the mid-west coast while debris from the Southern Ocean is also washed ashore. Accumulated plastic remnants from the coastal system are commonly collected at some locations.

In 2019 there was one clean-up event at Parry's Beach near Denmark that contributed data to the WA Beach Clean-up event. While located over 20km from the nearest town, this beach is a popular surfing destination and is located next to a caravan park. Data from the 2019 clean-up reflect a mixed source of debris from beach users and items that have washed ashore. Other clean-up activity included Blossoms Beach, Short Beach and Native Dog Beach in Bremer Bay (no data recorded).



Parry's Beach, South Coast, Western Australia

South Coast Clean-up Sites





Items and sources - South Coast Coastal beaches away from built areas

Clean-up sites / notes	Тор	-ranking items						
Parry's Beach Fast of Inlet	Rank	Item	Total	%				
Blossoms Beach*	1	Plastic bits & pieces hard & solid	165	42%				
Native Deg Reach*	2	Lids & tops, pump spray, flow restrictor & similar	119	30%				
Chart Dog Beach	3	Rope & net scraps less than 1 metre	36	9%				
Short Beach	4	Plastic drink bottles (water, juice, milk, soft drink)	16	4%				
Cosy Corner*	5	5 Foam cups, food packs & trays		3%				
*Cloan up undertaken	6	Glass beer stubbies & pre-mixed alcohol bottles	7	2%				
but data not received	7	Commercial fishing remnants (float, pot, crate bits)	7	2%				
from these beaches.	8	Plastic bags supermarket, garbage, dog poo, ice	4	1%				
	9	Shoes leather & fabric	4	1%				
	10	Toys, party poppers, ribbons, clips & similar	4	1%				
			372	94%				
	Item origin legend							
	Land group - High probability of these items being local in origin							
	Intermediate group - Origin of these items is proportional to the LSSI							
	Offshore group - High probability of these items being of offshore origin							

|--|

Data source clean-up statistics				Materials	Land and sea source index		
Clean-ups	ltems re- moved	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
1	395	5	91%	3%	2%	5%	95%

WA 2014 - 2018 - Coastal beaches away from built areas								
Data sou	irce clean-up	statistics	Materials Lan		Land and se	d sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea	
58	27023	1939	87%	4%	3%	11%	89%	

South Coast Photo gallery



South West

In 2019 the combined density of items collected from 14 clean-ups at south west beaches close to built-up areas was well over double the density of items collected from 20 clean-ups at beaches away from built areas. In the past, these categories yielded a fairly equivalent density of items. Data suggests that debris at beaches close to towns was sourced mainly from beach users. In contrast, commercial fishing items recorded remote beaches was high, despite there being few commercial fishers working in this region. Many of these items are brought down from the mid-west coast by the Leeuwin Current.

A clean-up was also undertaken at St Alouan Island near Cape Leeuwin. On the island a large proportion of debris collected was comprised of plastic drink bottles, foam buoys and recreational fishing items. There is insufficient data for this location for the summary page category of 'islands'.

Staff from the Department of Biodiversity, Conservation and Attractions (DBCA) Frankland District got busy on some of WA's most remote beaches. Circus Beach can only be accessed by boat from Walpole town site to Sealers Cove and it is then a 1.5km walk to the beach. There is a 7m dune/sand cliff onto the beach where rubbish is hoisted up once collected. A total of 104 kg was removed from this site. They also cleaned up 68.5 kg from Bellanger Beach and removed 125 kg of broken glass bottles from along a roadside site in D'Entrecasteaux National Park!

At Busselton Jetty about 50 volunteers collected 2950 pieces of litter with 2281 of those comprising some form of plastic litter. A staggering 1763 cigarette butts were collected there as well.



South West clean-up sites





Items and sources - South West Coastal beaches in built areas

Clean-up	sites /	notes
----------	---------	-------

Augusta multiple Sites, Rivermouth to Skippy Rock

Bunker Bay

Busselton Jetty Foreshore

Cowaramup Bay

Dallyellup Beach

Dunsborough Town Beach

East Busselton Foreshore

Meelup Beach

Mindalong Beach

Shelly Cove

West Busselton Foreshore

Yallingup

Тор	-ranking items		
Rank	Item	Total	%
1	Glass or ceramic broken	3272	29%
2	Cigarette butts & filters	2326	21%
3	Plastic bits & pieces hard & solid	1159	10%
4	Paper & cardboard packaging	489	4%
5	Plastic film remnants (bits of plastic bag, wrap)	488	4%
6	Fishing line in metres (Recreation)	463	4%
7	Plastic packaging food (wrap, packets, containers)	221	2%
8	Plastic ceremonial & festive (wreaths, flowers)	221	2%
9	Lids & tops, pump spray, flow restrictor & similar	208	2%
10	Metal bottle caps, lids & pull tabs	199	2%
		9046	82 %

Item origin legend

Land group - High probability of these items being local in origin

Intermediate group - Origin of these items is proportional to the LSSI

Offshore group - High probability of these items being of offshore origin

West Australian Beach Clean-up 2019 - Coastal beaches in built areas

Data source clean-up statistics				Materials	Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
13	11097	251	53%	32%	6%	82 %	18%

WA 2014 - 2018 - Coastal beaches in built areas									
Data sou	irce clean-up	statistics	atistics Materials Lar		Materials Land and sea sou		a source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea		
355	132225	4926	71 %	9%	6%	70%	30%		

Items and sources - South West Coastal beaches away from built areas

Augusta Cliffs Boodjidup Beach Boranup Beach SouthRankItemTotal%Boranup Beach South Buffalo Beach1Plastic bits & pieces hard & solid446554%2Lids & tops, pump spray, flow restrictor & similar5026%Canal Rocks3Rope & net scraps less than 1 metre4676%Circus Beach4Rope (estimated length in metres)2473%Conto Spring5Foam insulation & packaging (whole and remnants)2273%Cosy Corner6Plastic drink bottles (water, juice, milk, soft drink)1842%Deepdene7Plastic packaging food (wrap, packets, containers)1682%Foul Bay8Plastic film remnants (bits of plastic bag, wrap etc)1522%Hillview9Commercial fishing remnants (float, pot, crate bits)1302%Mitchell Rocks to Wyadup10Unspecified plastic items1061%Old Rivermouth to Ledge Point, Scott RiverIterr-vigin legendIterr-vigin legendIterr-vigin legendQuary Bay Redgate BeachInterr-ediate group - Origin of these items being local in originUnterr-vigin of these items being local in originOffshore group - High probability of these items being of offshore originOffshore originItem offshore origin	Clean-up sites / notes	Тор	-ranking items		
Boodjidup Beach 1 Plastic bits & pieces hard & solid 4465 54% Boranup Beach South 2 Lids & tops, pump spray, flow restrictor & similar 502 6% Canal Rocks 3 Rope & net scraps less than 1 metre 467 6% Circus Beach 4 Rope (estimated length in metres) 247 3% Conto Spring 5 Foam insulation & packaging (whole and remnants) 227 3% Cosy Corner 6 Plastic drink bottles (water, juice, milk, soft drink) 184 2% Deepdene 7 Plastic packaging food (wrap, packets, containers) 168 2% Foul Bay 8 Plastic film remnants (bits of plastic bag, wrap etc) 152 2% Hillview 9 Commercial fishing remnants (float, pot, crate bits) 130 2% Milyeannup 10 Unspecified plastic items 106 1% Milyeannup Item origin legend Land group - High probability of these items being local in origin Quarry Bay Intermediate group - Origin of these items is proportional to the LSSI Offshore group - High probability of these items being of offshore origin	Augusta Cliffs	Rank	Item	Total	%
Boranup Beach South 2 Lids & tops, pump spray, flow restrictor & similar 502 6% Canal Rocks 3 Rope & net scraps less than 1 metre 467 6% Circus Beach 4 Rope (estimated length in metres) 247 3% Conto Spring 5 Foam insulation & packaging (whole and remnants) 227 3% Cosy Corner 6 Plastic drink bottles (water, juice, milk, soft drink) 184 2% Deepdene 7 Plastic packaging food (wrap, packets, containers) 168 2% Foul Bay 8 Plastic film remnants (bits of plastic bag, wrap etc) 152 2% Hillview 9 Commercial fishing remnants (float, pot, crate bits) 130 2% Mithell Rocks to 10 Unspecified plastic items 106 1% Mitchell Rocks to Wyadup 106 1% 1% Old Rivermouth to Land group - High probability of these items being local in origin Land group - High probability of these items being of offshore origin Quarry Bay Intermediate group - Origin of these items is proportional to the LSSI Offshore group - High probability of these items being of offshore origin <td>Boodjidup Beach</td> <td>1</td> <td>Plastic bits & pieces hard & solid</td> <td>4465</td> <td>54%</td>	Boodjidup Beach	1	Plastic bits & pieces hard & solid	4465	54%
Canal Rocks3Rope & net scraps less than 1 metre4676%Circus Beach4Rope (estimated length in metres)2473%Conto Spring5Foam insulation & packaging (whole and remnants)2273%Cosy Corner6Plastic drink bottles (water, juice, milk, soft drink)1842%Deepdene7Plastic packaging food (wrap, packets, containers)1682%Foul Bay8Plastic film remnants (bits of plastic bag, wrap etc)1522%Hillview9Commercial fishing remnants (float, pot, crate bits)1302%Left Handers Beach10Unspecified plastic items1061%Mitchell Rocks to Wyadup10Unspecified plastic items1061%Old Rivermouth to Ledge Point, Scott RiverItem origin legendLand group - High probability of these items being local in originQuarry BayIntermediate group - Origin of these items is proportional to the LSSIOffshore group - High probability of these items being of offshore origin	Boranup Beach South Buffalo Beach	2	Lids & tops, pump spray, flow restrictor & similar	502	6%
Circus Beach4Rope (estimated length in metres)2473%Conto Spring5Foam insulation & packaging (whole and remnants)2273%Cosy Corner6Plastic drink bottles (water, juice, milk, soft drink)1842%Deepdene7Plastic packaging food (wrap, packets, containers)1682%Foul Bay8Plastic film remnants (bits of plastic bag, wrap etc)1522%Hillview9Commercial fishing remnants (float, pot, crate bits)1302%Left Handers Beach10Unspecified plastic items1061%Mitchell Rocks to WyadupItem origin legendItem origin legend664881%Quarry Bay Redgate BeachIntermediate group - Origin of these items being local in origin Intermediate group - Origin of these items being of offshore origin0ffshore group - High probability of these items being of offshore origin	Canal Rocks	3	Rope & net scraps less than 1 metre	467	6%
Conto Spring5Foam insulation & packaging (whole and remnants)2273%Cosy Corner6Plastic drink bottles (water, juice, milk, soft drink)1842%Deepdene6Plastic drink bottles (water, juice, milk, soft drink)1842%Ellensbrook7Plastic packaging food (wrap, packets, containers)1682%Foul Bay8Plastic film remnants (bits of plastic bag, wrap etc)1522%Hillview9Commercial fishing remnants (float, pot, crate bits)1302%Left Handers Beach10Unspecified plastic items1061%Mitchell Rocks to Wyadup10Unspecified plastic items1061%Old Rivermouth to Ledge Point, Scott RiverItem origin legendLand group - High probability of these items being local in originQuarry BayIntermediate group - Origin of these items is proportional to the LSSIOffshore group - High probability of these items being of offshore origin	Circus Beach	4	Rope (estimated length in metres)	247	3%
Cosy Corner 6 Plastic drink bottles (water, juice, milk, soft drink) 184 2% Deepdene 7 Plastic packaging food (wrap, packets, containers) 168 2% Foul Bay 8 Plastic film remnants (bits of plastic bag, wrap etc) 152 2% Hillview 9 Commercial fishing remnants (float, pot, crate bits) 130 2% Left Handers Beach 10 Unspecified plastic items 106 1% Mitchell Rocks to 100 Unspecified plastic items 106 1% Old Rivermouth to Item origin legend Land group - High probability of these items being local in origin Land group - High probability of these items is proportional to the LSSI Quarry Bay Intermediate group - Origin of these items is proportional to the LSSI Offshore group - High probability of these items being of offshore origin	Conto Spring	5	Foam insulation & packaging (whole and remnants)	227	3%
Deepdenie 7 Plastic packaging food (wrap, packets, containers) 168 2% Foul Bay 8 Plastic film remnants (bits of plastic bag, wrap etc) 152 2% Hillview 9 Commercial fishing remnants (float, pot, crate bits) 130 2% Left Handers Beach 10 Unspecified plastic items 106 1% Milyeannup 6648 81% Mitchell Rocks to 10 Unspecified plastic items 106 1% Old Rivermouth to Item origin legend Item origin legend Item origin legend Quarry Bay Intermediate group - High probability of these items being local in origin Intermediate group - Origin of these items is proportional to the LSSI Offshore group - High probability of these items being of offshore origin Intermediate group - High probability of these items being of offshore origin	Cosy Corner	6	Plastic drink bottles (water, juice, milk, soft drink)	184	2%
Foul Bay8Plastic film remnants (bits of plastic bag, wrap etc)1522%Hillview9Commercial fishing remnants (float, pot, crate bits)1302%Left Handers Beach10Unspecified plastic items1061%Mitchell Rocks to Wyadup10Unspecified plastic items1061%Old Rivermouth to Ledge Point, Scott RiverItem origin legendItem origin legendItem origin legendQuarry Bay Redgate BeachIntermediate group - High probability of these items being local in origin Offshore group - High probability of these items being of offshore originOffshore origin	Ellensbrook	7	Plastic packaging food (wrap, packets, containers)	168	2%
Hillview9Commercial fishing remnants (float, pot, crate bits)1302%Left Handers Beach10Unspecified plastic items1061%Milyeannup10Unspecified plastic items1061%Mitchell Rocks to Wyadup664881%Old Rivermouth to Ledge Point, Scott RiverItem origin legend5648Quarry Bay Redgate BeachIntermediate group - High probability of these items being local in origin100Offshore group - High probability of these items being of offshore origin551	Foul Bay	8	Plastic film remnants (bits of plastic bag, wrap etc)	152	2%
Left Handers Beach 10 Unspecified plastic items 106 1% Milyeannup 6648 81% Mitchell Rocks to 6648 81% Wyadup Item origin legend 6648 81% Old Rivermouth to Item origin legend 100 100 1% Quarry Bay Intermediate group - High probability of these items being local in origin 100 1% Offshore group - High probability of these items being of offshore origin 100 1%	Hillview	9	Commercial fishing remnants (float, pot, crate bits)	130	2%
Milyeannup 6648 81% Mitchell Rocks to 6648 81% Wyadup Item origin legend 6648 81% Old Rivermouth to Item origin legend 1 1 Quarry Bay Land group - High probability of these items being local in origin 1 1 Redgate Beach Intermediate group - Origin of these items is proportional to the LSSI 0 0 Offshore group - High probability of these items being of offshore origin 1 1 1	Left Handers Beach	10	Unspecified plastic items	106	1%
Wyadup Item origin legend Old Rivermouth to Item origin legend Ledge Point, Scott River Land group - High probability of these items being local in origin Quarry Bay Intermediate group - Origin of these items is proportional to the LSSI Offshore group - High probability of these items being of offshore origin	Milyeannup Mitchell Rocks to			6648	81%
Old Rivermouth to Ledge Point, Scott River Item origin legend Quarry Bay Land group - High probability of these items being local in origin Redgate Beach Intermediate group - Origin of these items is proportional to the LSSI Offshore group - High probability of these items being of offshore origin	Wyadup				
Ledge Point, scott River Quarry Bay Redgate Beach Intermediate group - Origin of these items is proportional to the LSSI Offshore group - High probability of these items being of offshore origin	Old Rivermouth to	Item	origin legend		
Redgate Beach Intermediate group - Origin of these items is proportional to the LSSI Offshore group - High probability of these items being of offshore origin	Quarry Bay	Land	group - High probability of these items being local in orig	Jin	
Offshore group - High probability of these items being of offshore origin	Redgate Beach	Inter	mediate group - Origin of these items is proportional to th	ne LSSI	
		Offsh	nore group - High probability of these items being of offsh	ore origi	n

West Australian Beach Clean-up 2019 - Coastal beaches away from built areas

Data sou	urce clean-up	statistics		Materials		Land and se	a source index
Clean-ups	ltems removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
19	8196	296	87 %	4%	3%	8%	92 %

WA 2014	- 2018 - Co	astal beach	nes away fro	om built are	eas		
Data sou	ırce clean-up	statistics		Materials		Land and se	a source index
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Foam	Debris from the land	Debris from the sea
537	199844	16983	84%	5%	4%	13%	86%

South West Photo gallery



 Circus beach team DBCA with their huge clean-up haul.
 The Busselton Jetty community team had a beautiful day for the clean-up and a great turn out with more than 50 people helping out.
 The DBCA clean-up team at Bellanger Beach.
 Clean-Up team happy volunteers.
 Chantel, Elvira and Charlie join in the clean-up.
 Some of the marine debris collected during the Augusta Clean-up

5.

Peel-Harvey

There has been a dramatic increase in the number of beach and foreshore clean-ups undertaken in the Peel-Harvey NRM region: up from one in 2018 to an impressive 34 in 2019. Importantly, a significant proportion of these were undertaken along the foreshores of inland waterways, where community use is high and there is a large risk of debris being washed out to sea.

Much of the increase in participation stemmed from the 'Reel it in' event at Dawesville Cut and Peel-Harvey Estuary. This was a collaborative effort, held by the Department of Biodiversity, Conservation and Attractions, River Guardians Program. Tangaroa Blue joined the day along with Keep Australia Beautiful WA (KABC) and RecFish West, WA Seabird Rescue, John Tonkin College, Mandurah Ocean Dive, and Tackle World Miami, who completed an underwater clean-up of the estuary. Displays were provided by KABC, Tangaroa Blue, Reel it in, WA Seabird Rescue and others interested in the protection and conservation of local marine and estuarine environments.

Across all categories of clean-up cigarette butts, fishing line, aluminium cans, food wrapping and glass drink bottles all featured highly in the top ten items collected. These are all items that can be managed via changes to beach / foreshore user behaviour.



Litter collected during the clean-up at Dawesville.

Peel-Harvey -up sites





Items and sources - Peel-Harvey Coastal beaches in built areas

Clean-up sites / notes	Тор	-ranking items					
Avalon Beach	Rank	Item	Total	%			
Falcon Pyramids Beach	1	Cigarette butts & filters	100	9%			
	2	Plastic packaging food (wrap, packets, containers)	92	9%			
	3	Plastic bits & pieces hard & solid	80	8%			
	4	Fishing line in metres (Recreation)	79	7%			
	5	Glass beer stubbies & pre-mixed alcohol bottles	74	7%			
	6	Plastic bags supermarket, garbage, dog poo, ice	69	7%			
	7	Plastic film remnants (bits of plastic bag, wrap etc)	60	6%			
	8	Aluminium cans	50	5%			
	9	Metal bottle caps, lids & pull tabs	40	4%			
	10	Glass or ceramic broken	39	4%			
			683	65%			
	ltem	origin legend					
	Land group - High probability of these items being local in origin						
	Inter	mediate group - Origin of these items is proportional to th	e LSSI				
	Offsł	nore group - High probability of these items being of offsh	ore origi	n			

West Australian Beach Clean-up 2019 - Coastal beaches in built areas

Data sou	urce clean-up	statistics		Materials		Land and se	a source index
Clean-ups	ltems re- moved	Weight Kg	Plastic	Metal	Glass & ceramic	Debris from the land	Debris from the sea
7	1058	249	60%	13%	11%	66%	34%

WA 2014	- 2018 - Co	astal beach	nes in built a	areas			
Data sou	urce clean-up	statistics		Materials		Land and se	a source index
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Paper & cardboard	Debris from the land	Debris from the sea
19	10780	344	70%	9%	7%	63%	37%

Items and sources - Peel-Harvey Coastal beaches away from built areas

Clean-up sites / notes	Тор	-ranking items					
Tims Thicket	Rank	Item	Total	%			
Dawesville	1	Fishing line in metres (Recreation)	25	14%			
	2	Aluminium cans	20	11%			
	3	Plastic packaging food (wrap, packets, containers)	20	11%			
	4	Glass beer stubbies & pre-mixed alcohol bottles	13	7%			
	5	Plastic bags supermarket, garbage, dog poo, ice	12	7%			
	6	Foil wrappers, packets, bladders & alfoil	11	6%			
	7	Plastic drink bottles (water, juice, milk, soft drink)	8	5%			
	8	Bait & tackle bags & packaging	7	4%			
	9	Plastic wrap non-food (bubble wrap etc)	7	4%			
	10	Paper & cardboard packaging	6	3%			
			129	73 %			
	ltem	origin legend					
	Land group - High probability of these items being local in origin						
	Inter	mediate group - Origin of these items is proportional to th	e LSSI				
	Offsł	nore group - High probability of these items being of offsh	ore origi	n			

West Australian Beach Clean-up 2019 - Coastal beaches away from built areas

Data sou	irce clean-up	statistics		Materials		Land and se	a source index
Clean-ups	ltems removed	Weight Kg	Plastic	Metal	Glass & ceramic	Debris from the land	Debris from the sea
2	176	8	59 %	19%	9 %	56%	44%

WA 2014	- 2018 - Co	astal beach	nes away fro	om built are	eas		
Data sou	irce clean-up	statistics		Materials		Land and se	a source index
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
2	758	175	74 %	16%	5%	28%	72 %

Items and sources - Peel-Harvey Inland waterways

Dawsville Reserve Foreshore John Tonkin College Marine Centre Port Bouvard Sailing Club Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Dawsville Reserve Foreshore John Tonkin College Marine Centre Port Bouvard Sailing Club Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	
John Tonkin CollegeMarine Centre PortBouvard Sailing ClubNovara Beach ReserveWarrungup Spring Foreshore ReserveWaterside ReserveDudley ParkMandurah	John Tonkin College Marine Centre Port Bouvard Sailing Club Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Dawsville Reserve Foreshore
Marine Centre Port Bouvard Sailing Club Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Marine Centre Port Bouvard Sailing Club Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	John Tonkin College
Bouvard Sailing Club Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Bouvard Sailing Club Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Marine Centre Port
Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Novara Beach Reserve Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Bouvard Sailing Club
Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Warrungup Spring Foreshore Reserve Waterside Reserve Dudley Park Mandurah	Novara Beach Reserve
Waterside Reserve Dudley Park Mandurah	Waterside Reserve Dudley Park Mandurah	Warrungup Spring Foreshore Reserve
Dudley Park Mandurah	Dudley Park Mandurah	Waterside Reserve
Mandurah	Mandurah	Dudley Park
		Mandurah

Clean-up sites / notes

Тор	-ranking items		
Rank	ltem	Total	%
1	Cigarette butts & filters	421	16%
2	Fishing line in metres (Recreation)	396	15%
3	Plastic film remnants (bits of plastic bag, wrap etc)	288	11%
4	Plastic packaging food (wrap, packets, containers)	196	7%
5	Plastic bits & pieces hard & solid	151	6%
6	Metal bottle caps, lids & pull tabs	106	4%
7	Aluminium cans	76	3%
8	Glass beer stubbies & pre-mixed alcohol bottles	76	3%
9	Plastic drink bottles (water, juice, milk, soft drink)	73	3%
10	Glass or ceramic broken	69	3%
		1852	69 %

Item origin legend

Land group - High probability of these items being local in origin

Intermediate group - Origin of these items is proportional to the LSSI

Offshore group - High probability of these items being of offshore origin

West Au	stralian Be	ach Clean-	up 2019 - I	nland wate	rways		
Data sou	irce clean-up	statistics		Materials		Land and se	a source index
Clean-ups	ltems removed	Weight Kg	Plastic	Metal	Glass & ceramic	Debris from the land	Debris from the sea
25	2680	467	71 %	9%	6 %	N/A	N/A

WA 2014	- 2018 - Inl	and waterv	vays				
Data sou	irce clean-up	statistics		Materials		Land and se	a source index
Clean-ups	ltems removed	Weight Kg	Plastic	Paper & cardboard	Metal	Debris from the land	Debris from the sea
5	2502	352	66%	11%	10%	N/A	N/A

Peel-Harvey Photo gallery Dawesville clean-up event





All photos from Dawesville clean-up event

 Busy sorters categorise debris for recording.
 Family recording data for AMDI. 3. Hazardous fishing line removed from the environment.
 Tangaroa Blue staff led the sorting and recording process. 5. A family clean-up team get to work.
 John Tonkin College volunteered at the event.



Perth

This metropolitan region has the highest population and the highest density of marine debris collected in WA (outside of the Indian Ocean Territories). Local litter comprises the greatest proportion of all debris collected, especially cigarette butts and filters.

In 2019 clean-ups occurred throughout the coastline of the region from Coogee to Yanchep, as well as along a few inland foreshore areas near the Swan River. A much higher density of litter was collected from foreshore areas of inland waterways in 2019 compared to previous years. Eight adults and five kids got together at Bardon Park, Maylands to clean up around the river foreshore. Alison Dorn from Tangaroa Blue joined with local volunteers, including an enthusiastic team from Notre Dame University to clean the beach at C Y O'Connor Beach, Fremantle.



Busy sorters at Chidley Point, Mosman Park.

Perth clean-up sites





Items and sources - Perth Coastal beaches in built areas

Clean-up sites / notes	
Ammunition Jetty Coogee	
	I 1

Bathers Beach

City Beach

Cottesloe Beach

CY O'Connor Beach

Floreat Beach

Fremantle Fishing Boat Inner Harbour Infrastructure

Golden Bay

Hillarys

Mangles Bay, Rockingham

Point Peron North Side

Safety Bay Beach

Scarborough Beach

Shoalwater Beach

Singleton Beach

Yanchep Beach and Lagoon

Тор	-ranking items		
Rank	ltem	Total	%
1	Cigarette butts & filters	7459	44%
2	Glass or ceramic broken	1634	10%
3	Plastic film remnants (bits of plastic bag, wrap etc)	992	6%
4	Plastic packaging food (wrap, packets, containers)	982	6%
5	Paper & cardboard packaging	886	5%
6	Plastic bits & pieces hard & solid	789	5%
7	Metal bottle caps, lids & pull tabs	607	4%
8	Straws, confection sticks, cups, plates & cutlery	415	2%
9	Lids & tops, pump spray, flow restrictor & similar	255	2%
10	Glass beer stubbies & pre-mixed alcohol bottles	231	1%
		14250	85%

Item origin legend

Land group - High probability of these items being local in origin

Intermediate group - Origin of these items is proportional to the LSSI

Offshore group - High probability of these items being of offshore origin

West Australian Beach Clean-up 2019 - Coastal beaches in built areas

Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Paper & cardboard	Debris from the land	Debris from the sea	
17	16859	307	70%	12%	7 %	82 %	18%	

WA 2014 - 2018 - Coastal beaches in built areas									
Data source clean-up statistics			Materials			Land and sea source index			
Clean-ups	ltems removed	Weight Kg	Plastic	Paper & cardboard	Glass & ceramic	Debris from the land	Debris from the sea		
322	533314	12615	73%	8%	7 %	70%	30%		

Items and sources - Perth Inland waterways

Clean-up sites / notes	Тор	-ranking items		
Bardon Park, Swan River, Maylands	Rank	ltem	Total	%
Chidley Doint Deserve	1	Glass or ceramic broken	6643	43%
	2	Plastic bags supermarket, garbage, dog poo, ice	5048	33%
	3	Paper & cardboard packaging	1350	9%
	4	Plastic film remnants (bits of plastic bag, wrap etc)	720	5%
	5	Cigarette butts & filters	337	2%
	6	Fishing line in metres (Recreation)	220	1%
	7	Lids & tops, pump spray, flow restrictor & similar	175	1%
	8	Plastic packaging food (wrap, packets, containers)	156	1%
	9	Plastic bits & pieces hard & solid	117	1%
	10	Straws, confection sticks, cups, plates & cutlery	110	1%
			14876	96 %
	ltem	origin legend		
	Land	group - High probability of these items being local in orig	in	
	Inter	mediate group - Origin of these items is proportional to th	e LSSI	
	Offsh	nore group - High probability of these items being of offsh	ore origi	n

West Australian Beach Clean-up 2019 - Inland waterways								
Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Paper & cardboard	Debris from the land	Debris from the sea	
4	15528	137	46 %	43%	9%	N/A	N/A	

WA 2014 – 2018 - Inland waterways									
Data source clean-up statistics			Materials			Land and sea source index			
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea		
48	42929	1332	64%	10%	9%	N/A	N/A		

Perth Photo gallery



6

.

AUSTRALIAN

 Bardon Park team happy with their haul.
 Cigarette butts high on the collected items list at Bardon Park.
 A volunteer and her collection at the Coogee clean-up.

CIGARETTE BUTTS 1.

Northern Agricultural

In 2019 there were six clean-ups undertaken on beaches close to caravan parks or towns in the Northern Agricultural region. A relatively low density of litter was found in these areas with items likely sourced from both beach users, including recreational fishers, and from commercial fishing waste washed ashore.

The Dongara Professional Fishermen's Association had a great turn out for the clean-up day at South Beach, Port Denison where approximately 6 cubic metres of debris was removed. This included 30 glass beer stubbies and 50 aluminium cans!



Volunteers at the Dongara Professional Fishermen's Association clean-up event at Port Denison.

Northern Agricultural clean-up sites





Items and sources - Northern Agricultural Coastal beaches in built areas

Clean-up sites / notes	Тор	-ranking items					
Granny's Beach to	Rank	ltem	Total	%			
Park	1	Cigarette butts & filters	1245	28%			
GWTZ01 Grey South	2	Rope (estimated length in metres)	235	5%			
Horrocks Beach	3	Foam buoys	206	5%			
Red Bluff to Murchison	4	Plastic film remnants (bits of plastic bag, wrap etc)	203	5%			
River Mouth	5	Rope & net scraps less than 1 metre	202	5%			
Kalbarri	6	Glass beer stubbies & pre-mixed alcohol bottles	201	5%			
South Beach,	7	Metal bottle caps, lids & pull tabs	194	4%			
Port Denison	8	Aluminium cans	189	4%			
Wedge Island South	9	Plastic wrap non-food (bubble wrap etc)	170	4%			
	10	Plastic bits & pieces hard & solid	150	3%			
			2995	68%			
	ltem	oriain legend					
	Land group - High probability of these items being local in origin						
	Intermediate group - Origin of these items is proportional to the LSSI						
	Offshore group - High probability of these items being of offshore origin						

Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Metal	Glass & ceramic	Debris from the land	Debris from the sea	
6	4407	702	68%	11%	8%	62 %	38%	

WA 2014 – 2018 - Coastal beaches in built areas									
Data source clean-up statistics			Materials			Land and sea source index			
Clean-ups	ltems removed	Weight Kg	Plastic	Glass & ceramic	Paper & cardboard	Debris from the land	Debris from the sea		
134	43261	3591	73%	7%	6%	51%	49 %		

Northern Agricultural Photo gallery



Volunteers at the Dongara Professional Fishermen's Association clean-up event at Port Denison.

Rangelands

This region is the largest and most sparsely populated NRM region, however in a continuing trend from recent years nearly three quarters of items were from local litter, comprising consumer food and beverage items and smoking litter from land base sources.

The Kalbarri Offshore Angling Club gathered 38 people to collect rubbish from approximately 6km along the Murchison River foreshore. Another big effort was the cleanup coordinated by Wagoe Beach Caravan Park that covered a 10 km stretch between Wagoe Beach and Lucky Bay.

In Karratha Sarah McDonald, West Pilbara Turtle Program Coordinator (Department of Biodiversity, Conservation and Attractions) coordinated clean-ups involving 54 people at Bells Beach on Cape Lambert and Boat Beach, Port Walcott. Their most unusual find was pieces of the roof from the local yacht club that was lying around after Tropical Cyclone Veronica earlier in the year.



West Pilbara

Rangelands clean-up sites





Items and sources - Rangelands (North) Coastal beaches in built areas

Clean-up sites / notes	Тор	-ranking items		
Cable Beach	Rank	ltem	Total	%
Cemetery Beach	1	Aluminium cans	163	20%
Pretty Pool River and	2	Cigarette butts & filters	87	11%
beach	3	Plastic packaging food (wrap, packets, containers)	77	9%
	4	Glass beer stubbies & pre-mixed alcohol bottles	59	7%
	5	Lids & tops, pump spray, flow restrictor & similar	47	6%
	6	Plastic drink bottles (water, juice, milk, soft drink)	39	5%
	7	Paper & cardboard packaging	33	4%
	8	Plastic bags supermarket, garbage, dog poo, ice	30	4%
	9	Plastic bits & pieces hard & solid	28	3%
	10	Rubber balloons, balls & toys, elastic straps & bands	23	3%
			586	72 %
	ltem	origin legend		
	Land	l group - High probability of these items being local in orig	in	
	Inter	mediate group - Origin of these items is proportional to th	e LSSI	
	Offsh	nore group - High probability of these items being of offsh	ore origi	n

West Australian Beach Clean-up 2019 - Coastal beaches in built areas

Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Plastic Metal Glass Debris from		Debris from the land	Debris from the sea	
9	7071	403	76 %	9 %	5%	53%	47 %	

WA 2014 – 2018 - Coastal beaches in built areas								
Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Metal	Glass & ceramic	Debris from the land	Debris from the sea	
90	18819	4654	65%	13%	9%	53%	47 %	

Items and sources - Rangelands (North) Coastal beaches away from built areas

Clean-up sites / notes	Тор	-ranking items					
Anjo Peninsula Beach, Mungalalu	Rank	Item	Total	%			
Mangalala	1	Drug paraphernalia	40	43%			
	2	Plastic packaging food (wrap, packets, containers)	13	14%			
	3	Lids & tops, pump spray, flow restrictor & similar	10	11%			
	4	Paper & cardboard packaging	8	9%			
	5	Childcare items	5	5%			
	6	Personal effects (wallets, money, keys, jewellery)	5	5%			
	7	Sanitary (tissues, nappies, condoms, cotton buds)	2	2%			
	8	Plastic bits & pieces hard & solid	2	2%			
	9	Plastic tubes & hoses	1	1%			
	10	Municipal activities (tree guard, barrier fence etc)	1	1%			
			87	95 %			
	ltem	origin legend					
	Land group - High probability of these items being local in origin						
	Intermediate group - Origin of these items is proportional to the LSSI						
	Offshore group - High probability of these items being of offshore origin						

West Australian Beach Clean-up 2019 - Coastal beaches away from built areas

Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	ltems removed	Weight Kg	Plastic	Paper & cardboard	Other	Debris from the land	Debris from the sea
1	92	0.1	80%	9%	8%	63%	37%

WA 2014 – 2018 - Coastal beaches away from built areas								
Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic Paper & Metal			Debris from the land	Debris from the sea	
37	10598	560	67 %	11%	7 %	41 %	59 %	

Items and sources - Rangelands (South) Coastal beaches away from built areas

Clean-up sites / notes	Тор	-ranking items						
Kanidal Beach	Rank	ltem	Total	%				
	1	Rope & net scraps less than 1 metre	30	58%				
	2	Plastic drink bottles (water, juice, milk, soft drink)	10	19%				
	3	Commercial fishing remnants (float, pot, crate bits)	3	6%				
	4	Strapping band scraps	3	6%				
	5	Processed timber, pallets & other wood	2	4%				
	6	Fluorescent light tubes and bulbs	1	2%				
	7	Rubber footwear & thongs	1	2%				
	8	Glass wine, spirit and similar bottles	1	2%				
	9	Plastic gardening items, implements & fittings	1	2%				
			52	100%				
	ltem	origin legend						
	Land group - High probability of these items being local in origin							
	Inter	mediate group - Origin of these items is proportional to th	ie LSSI					
	Offsh	ffshore group - High probability of these items being of offshore origin						

Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Wood	Glass	Debris from the land	Debris from the sea	
1	52	5	90%	4%	4%	2%	98 %	

WA 2014 – 2018 - Coastal beaches away from built areas								
Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic	Glass	Metal	Debris from the land	Debris from the sea	
49	12426	2597	91%	3%	2%	6 %	94 %	

Indian Ocean Territories

The amount of marine debris in this region is overwhelming and highlights the enormous issue of plastics in our oceans. This region has more marine debris than any other WA NRM region and may have the largest of all Australian islands. The graphs showing item density for this region require a completely different scale given that over 25,000 items can be collected per km, compared to other WA NRM region where between 100 and 1200 items per km may be collected.

Litter and plastic remnants from South East Asia are washed ashore by the South Equatorial Current, while debris from Southern Indian Ocean latitudes conveyed by the West Australian Current are also deposited on these beaches depending on the time of year.

In 2019 one clean-up was undertaken at Flying Fish Cove on Christmas Island (pictured below) where 2731 items were collected over only 100m! Flying Fish Cove is in the main settlement and the greater part of the debris was from local sources.



Flying Fish Cove, Christmas Island.

Indian Ocean Territories – Christmas Island





Items and sources - Christmas Island Islands

Clean-up sites / notes	Тор	-ranking items					
Flying Fish Cove,,	Rank	Item	Total	%			
	1	Cigarette butts & filters	881	32%			
	2	Plastic film remnants (bits of plastic bag, wrap etc)	306	11%			
	3	Plastic packaging food (wrap, packets, containers)	197	7%			
	4	Plastic bits & pieces hard & solid	179	7%			
	5	Glass or ceramic broken	148	5%			
	6	Straws, confection sticks, cups, plates & cutlery	136	5%			
	7	Plastic electrical cable, connectors & fittings	129	5%			
	8	Metal bottle caps, lids & pull tabs	98	4%			
	9	Foam insulation & packaging (whole and remnants)	94	3%			
	10	Lids & tops, pump spray, flow restrictor & similar	57	2%			
			2225	81%			
	ltem	origin legend					
	Land group - High probability of these items being local in origin						
	Inter	mediate group - Origin of these items is proportional to th	ie LSSI				
	Offshore group - High probability of these items being of offshore origin						

West Australian Beach Clean-up 2019 - Islands									
Data source clean-up statistics			Materials			Land and sea source index			
Clean-ups	ltems removed	Weight Kg	Plastic Metal Glass & ceramic			Debris from the land	Debris from the sea		
1	2731	54	75%	9%	6%	63%	37%		

WA 2014 – 2018 - Islands								
Data source clean-up statistics			Materials			Land and sea source index		
Clean-ups	ltems removed	Weight Kg	Plastic Rubber Foam			Debris from the land	Debris from the sea	
51	316910	13667	58%	21%	18%	15%	85%	

Unusual items found throughout the Clean-ups

From time to time we find some rather unusual items, here are a few that were found during the West Australian Beach Clean-up 2019.



Contributors and acknowledgements

Tangaroa Blue Foundation would like to thank Keep Australia Beautiful WA, Department of Biodiversity, Conservation and Attractions and local government authorities around the state, as well as all the dedicated volunteers for their ongoing support for this annual event:

- Acton South West
- Albany Secondary Education Support Centre
- Augusta Beach Clean-up team
- Baldivis Scout Group
- Birdlife Australia, Eyre Bird Observatory
- Bordeaux Wood Creations
- Bunker Bay Resort
- Busselton Jetty
- Care for Hedland Environmental Association Inc.
- Christsmas Island Marine Debris project
- Cleanr Crates
- Coast SWaP
- Coastal Clean-up Crew
- Department of Biodiversity Conservation and Attractions (DBCA)
- Dolphin Discovery Centre
- Dongara Professional Fisherman's Association
- Dunsborough Cornerstone Christian
 College
- Falcon Coastcare
- Friends of Gracetown and Cowaramup Bay
- Friends of North Ocean Reef
- Friends of Point Peron
- Friends of Redgate Beach Margaret River
- Friends of William Bay National Park
- GeoCatch
- Geraldton Grammar School
- Golden Bay Primary School
- Hopetoun Progress Association
- Island Care Christmas Island
- · John Curtin College of the Arts
- John Septimus Roe Anglican Community School Cadets
- John Tonkin College
- Kalbarri District High School
- Kalbarri Offshore and Angling Club
- Keep Australia Beautifil Council
- Kennedy Bay Coastcare
- Mandurah Ocean Dive and Tackle World Miami
- Mermaid Daydreams

- Murdoch University Divers
- Murdoch University Environmental Science Association
- Ngari Capes Marine Park
- Northampton District High School
- Nyul Nyul Rangers
- Parks and Wildlife Reel It In River Guardians
- Pemberton Discovery Tours
- Perth Advocates for the Earth Inc.
- Perth NRM Adopt a Beach
- Pilbara Ports Authority
- Port Coogee Community Association
- Prevelly Penguins
- Pullman Bunker Bay Resort
- RecFish West
- Responsible Runners Bunbury
- Right Foot Forward WA
- Rockingham SHS ESC
- Scotch College Junior High School
- Sea Shepherd Australia
- Shire of Christmas Island
- Shire of Cocos Keeling Islands
- Singleton Coastcare
- South Regional TAFE
- South West Maintenance
- Southern Crust
- St Stephen's School
- Subsea 7
- Swan Christian College
- Tangaroa Blue Foundation
- The Greens
- Undalup Association Inc.
- WA Wilderness Glamping
- Wedge Island Protection Association
- West Pilbara Turtle Program
- William Bay National Parks Association Inc.
- Wunambal Gaambera Aboriginal Corporation
- Yallingup Land Conservation District
 Committee
- Yanchep Secondary College



AUSTRALIAN MARINE DEBRIS INITIATIVE





www.tangaroablue.org