



## AUSTRALIAN MARINE DEBRIS INITIATIVE



# 2017 West Australian Beach Clean-up Report Card

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## Highlights

In 2017 over 1556 volunteers turned out on beaches across Western Australia to contribute to the 13th Annual West Australian Beach Clean-Up, hosted by Tangaroa Blue Foundation with support from Keep Australia Beautiful WA. Across the state over 137 beaches and stretches of coastline were cleaned up, from easy to access metropolitan beaches to remote locations like Dirk Hartog Island and Eyre Bird Observatory. Beautiful warm weather in the south west made for perfect conditions to be out on the beaches giving them a spring clean.

Some interesting finds included 16 socks collected off the beach in Dalyellup, emergency water ration packages with expiry dates of 8/2017 at South Beach in the south west and Leeman in the mid-west, six large plastic pallets at Deepdene and South Beach, and a special mark navigation buoy at Busselton.

There were great reports of custodianship of beach locations this year, with feedback about how little rubbish was collected at some sites due to ongoing work by locals in their day to day visits to the beach. Pamela Bremner from Binningup Coastcare and Environment Group said 'We have educated the community so well that we are finding people collect debris from the beach each time they take their daily dog or exercise walks.' Steve Fairbairn from Friends of Redgate said 'Beaches were really clean and I commend the attitude of the local surfers who always try to keep it that way.'

Large numbers attended individual events with Keep Australia Beautiful WA having 100 volunteers at their clean-up at Hillarys. With that many hands helping out they were able to remove 85 kg of rubbish including more than 1175 cigarette butts, 144 straws and plastic cutlery, 650 food wrappers, 201 aluminium cans, 106 glass bottles and 99 plastic bottles. Data like this provides a good baseline to show the effects of the Container Deposit Scheme once it is rolled out in Western Australia.

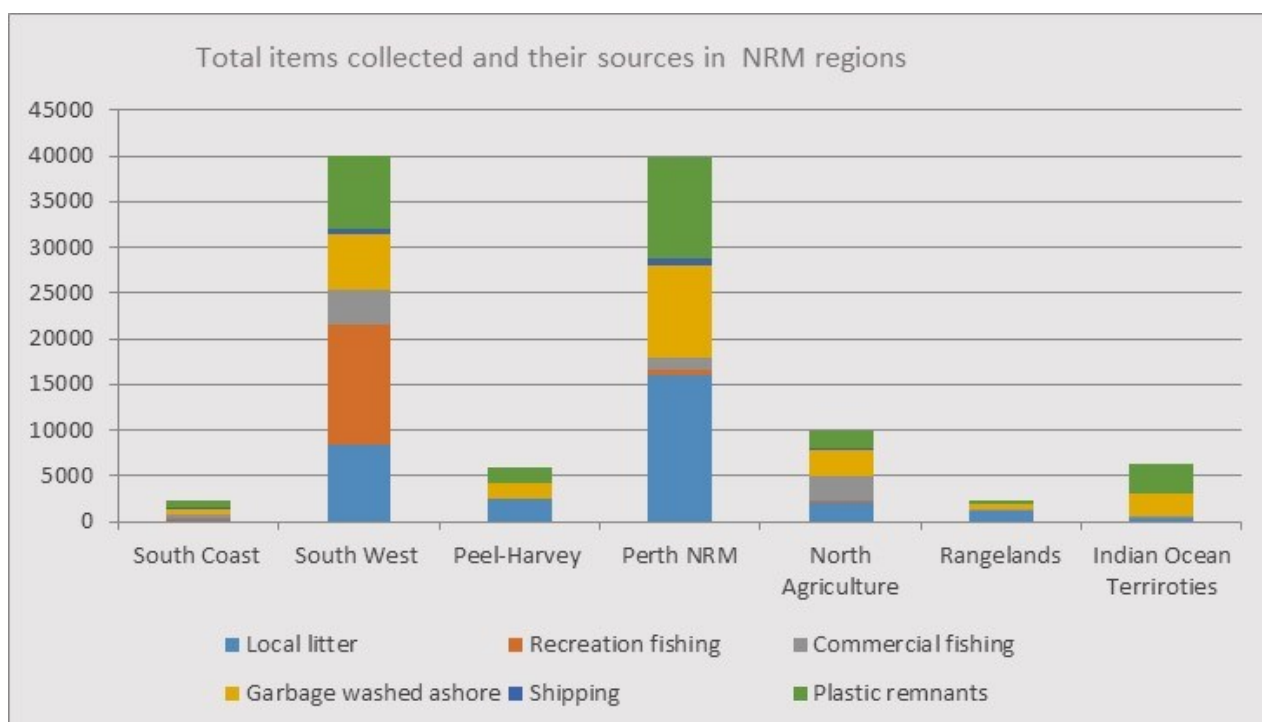
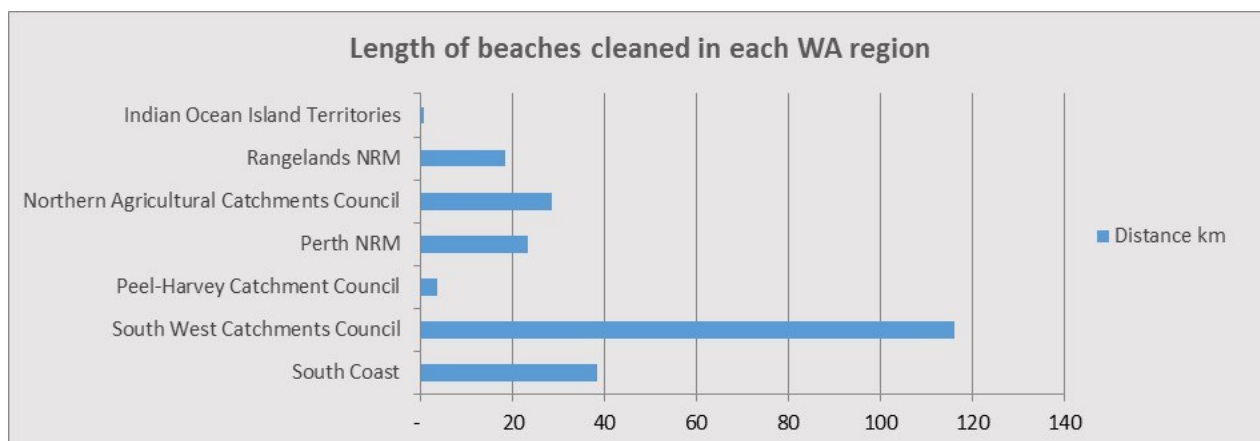
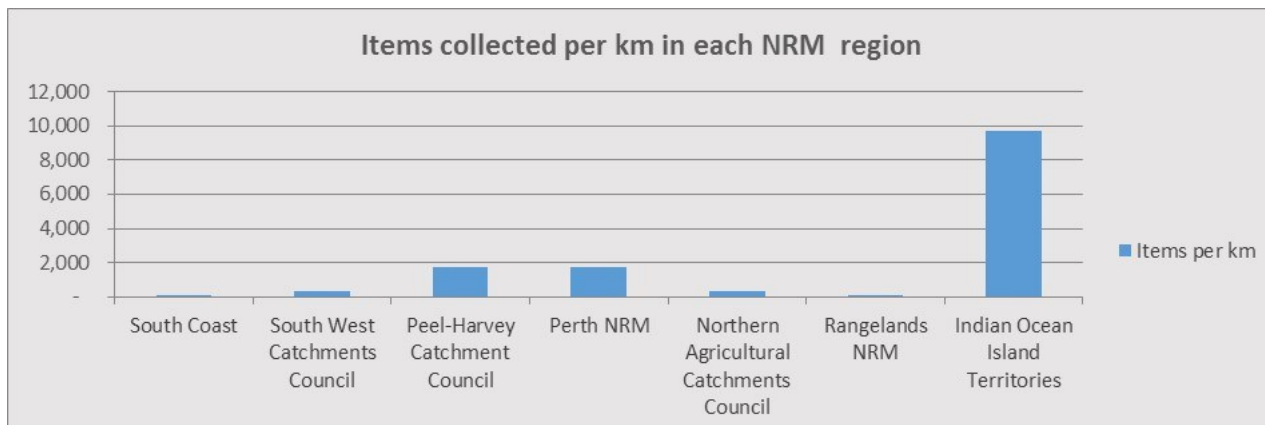
103 volunteers attended a clean-up at Home Island, one of the Cocos Keeling Islands, with 125 bags collected from 500m of foreshore and coastline with an average weight of 15kg per bag. This shows the enormity of the problem our offshore islands face from ocean borne debris.

This report was supported by funding from the Western Australian NRM Program.



## WA Summary

As for previous years, the 2017 WA Beach Clean-up produced vast differences across natural resource management (NRM) regions in terms of the total volume of marine debris collected, the numbers of volunteers involved in helping with clean-ups and the total length of beaches cleaned. Of the total 228km of beaches cleaned up in WA nearly half of this distance was located in the South West NRM region. While Perth and the South West dominated the total tally of items, the Indian Ocean Territory still has the highest density of marine debris collected, with a surprising 6320 items collected from less than 1 km of beach.



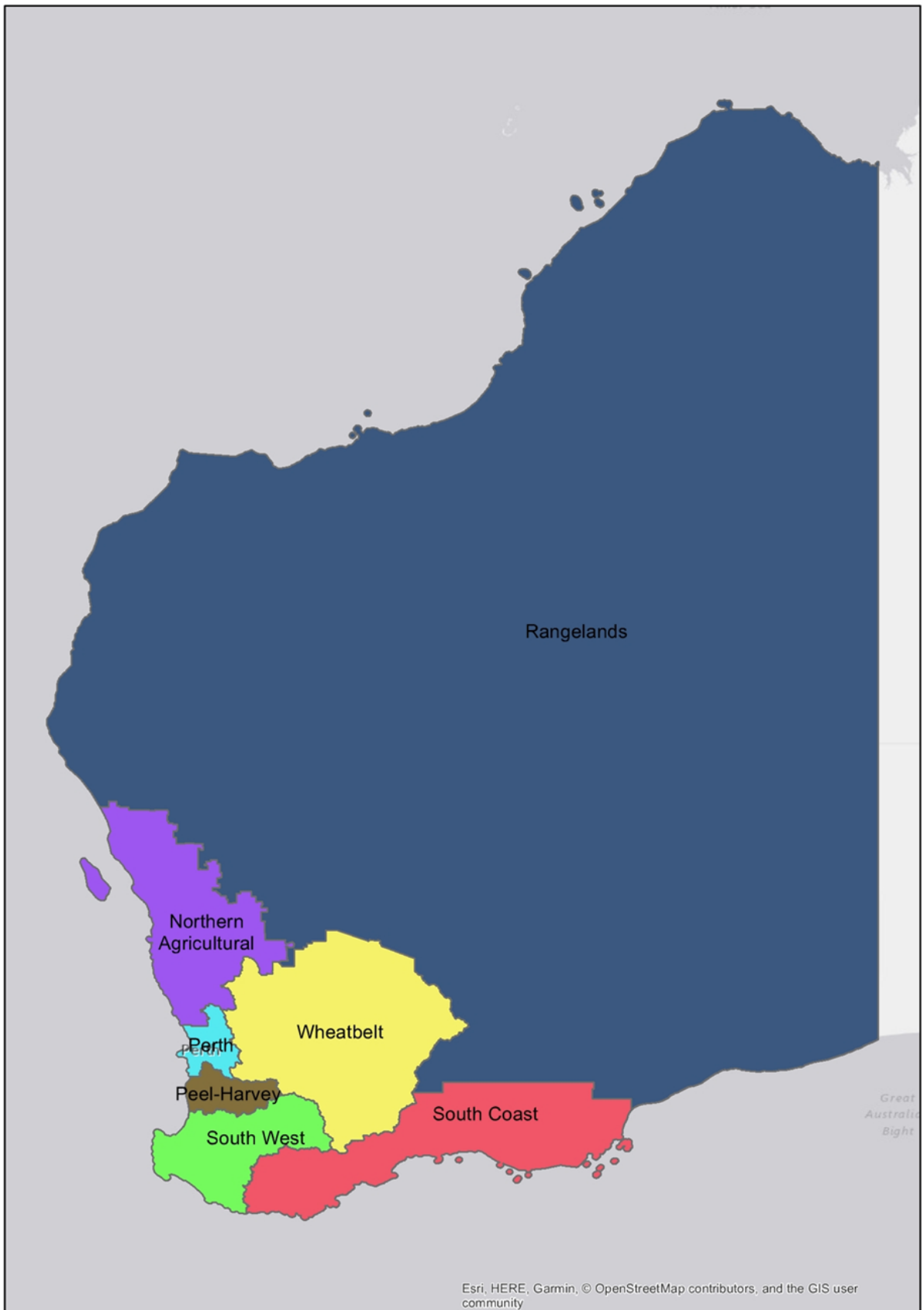


Figure 1: WA natural resource management regions



## South Coast NRM

**Summary:** Marine debris in this region is largely dominated by items that have washed ashore from the ocean. This region has a long coastline, which is mainly sparsely populated.

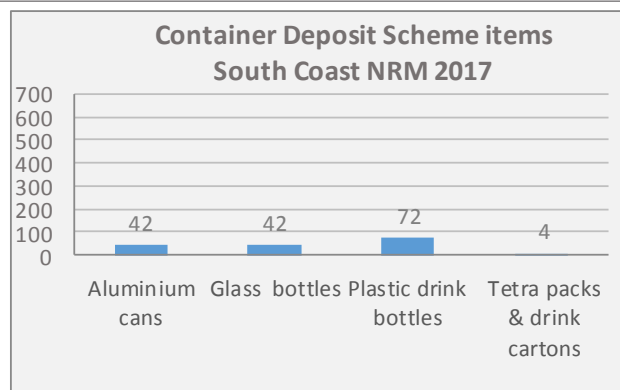
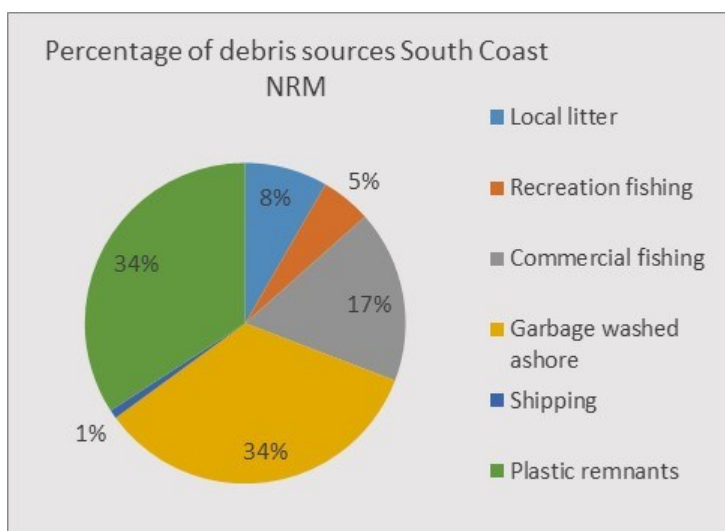
**Options for action:** Collaboration with other regions on commercial fishing debris, coastal hotspot remedial action, litter prevention around the towns.

**Major sources:** Leeuwin Current conveying debris and fishing gear mainly from the mid-west coast; debris from the Southern Ocean; shipping garbage; plastic remnants accumulating in the coastal system.



Esperance One and All Community program combined forces with South Coast Natural Resource Management with 82 people helping to clean up Twilight Beach,

Top 10 items 2017 (* CDS items in bold)	Sum of total	% of total
Plastic bits & pieces hard & solid	729	33%
Rope & net scraps less than 1 metre	330	15%
Lids & tops, pump spray, flow restrictor & similar	187	8%
Plastic packaging food (wrap, packets, containers)	97	4%
Glass or ceramic broken	89	4%
Cigarette butts & filters	72	3%
Recreation fishing items (lures, floats, rods, reels)	72	3%
<b>Plastic drink bottles (water, juice, milk, soft drink)</b>	<b>72</b>	<b>3%</b>
Metal bottle caps, lids & pull tabs	45	2%
<b>Aluminium cans</b>	<b>42</b>	<b>2%</b>



## South West Catchments Council

**Summary:** Recreational fishing contributes the greatest number of items to marine debris in this region. Local sources of litter are also significant. Commercial fishing items are high compared to most other regions despite there being few commercial fishers working in this region. There is a moderate density of overall debris, however the large overall number of items collected is a result of a very strong community involvement in the WA Beach Clean-up event in this area.

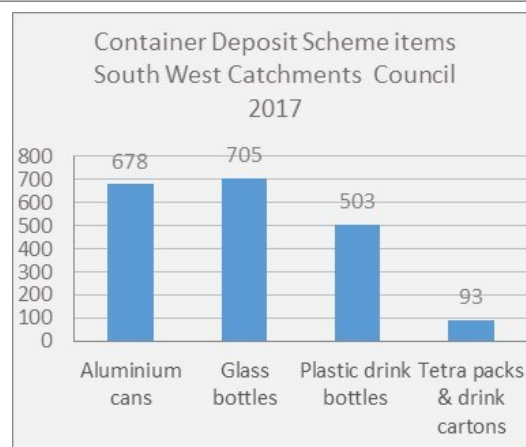
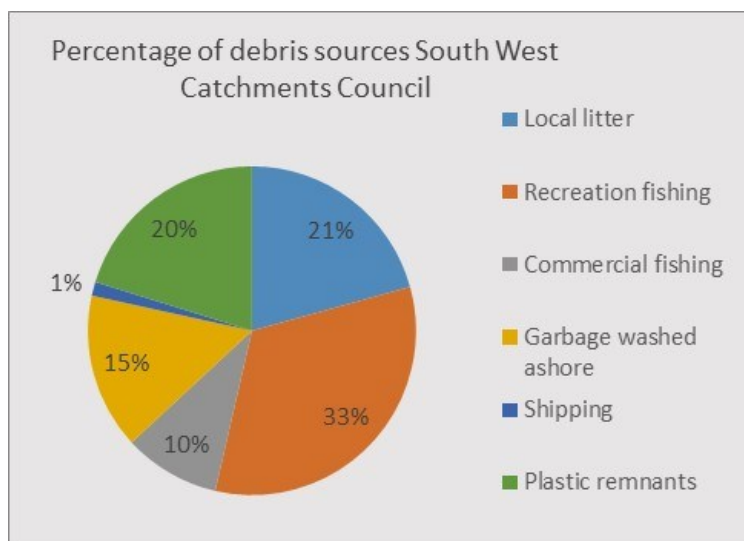
**Options for action:** Education and awareness programs to reduce local litter and recreational fishing gear on beaches; collaboration with other regions on commercial fishing debris; remediation of coastal marine debris hotspots.

**Major sources:** Recreational beach users – in particular recreational fishers; the Leeuwin Current which carries debris and fishing gear.



Students from Busselton Senior High School at Canal Rocks during a joint collaboration with the US Consul General.

Top 10 items 2017 (* CDS items in bold)	Sum of	% of total
Fishing line in metres (Recreation)	12737	32%
Plastic bits & pieces hard & solid	5332	13%
Glass or ceramic broken	3058	8%
Plastic film remnants (bits of plastic bag, wrap etc)	2714	7%
Lids & tops, pump spray, flow restrictor & similar	1659	4%
Rope & net scraps less than 1 metre	1598	4%
Plastic packaging food (wrap, packets, containers)	1548	4%
Rope (estimated length in metres)	1155	3%
Cigarette butts & filters	1043	3%
Paper & cardboard packaging	760	2%





## Peel-Harvey Catchment Council

**Summary:** Local litter contributes the greatest quantity of debris collected from this area followed by plastic remnants and garbage washed ashore. This region is mainly urban with a large population base and this is reflected by the high density of debris on beaches.

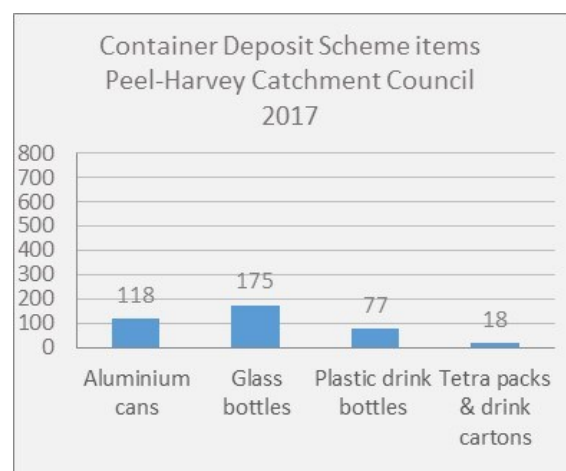
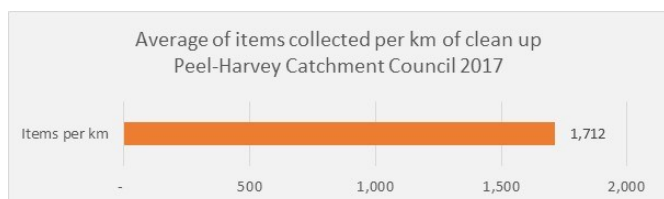
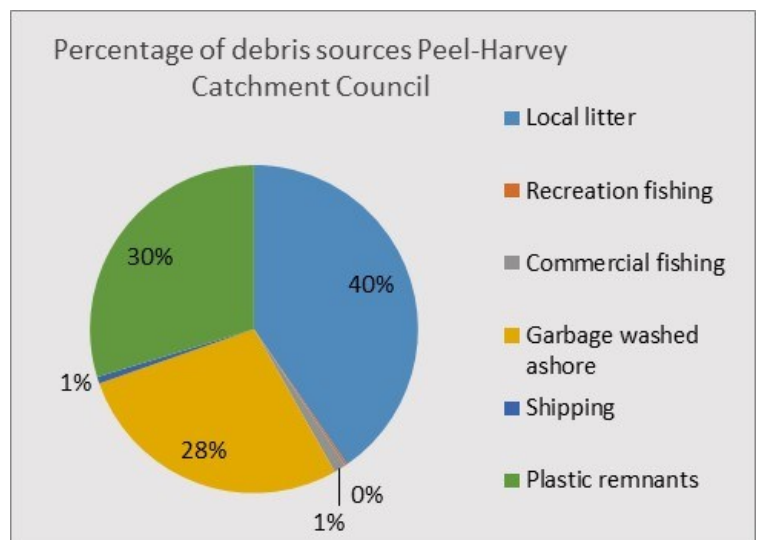
**Options for action:** Education and awareness programs to reduce local litter; collaboration with other regions on commercial fishing debris, coastal hotspot remedial action, litter prevention around the towns.

**Major sources:** Predominantly recreational beach users.



Volunteers clean up the Coodanup foreshore in Mandurah.

Top 10 items 2017 (* CDS items in bold)	Sum of total	% of total
Plastic bits & pieces hard & solid	908	15%
Plastic film remnants (bits of plastic bag, wrap etc)	872	15%
Cigarette butts & filters	833	14%
Plastic packaging food (wrap, packets, containers)	748	12%
Paper & cardboard packaging	448	7%
Lids & tops, pump spray, flow restrictor & similar	292	5%
Metal bottle caps, lids & pull tabs	209	3%
Glass or ceramic broken	184	3%
<b>Glass beer stubbies &amp; pre-mixed alcohol bottles</b>	<b>175</b>	<b>3%</b>
Straws, confection sticks, cups, plates & cutlery	173	3%



## Perth NRM

**Summary:** This metropolitan region has the highest population and the highest density of marine debris collected on mainland WA. Local litter comprises the greatest proportion of all debris collected.

**Options for action:** Adoption of Operation Clean Sweep program by logistics and plastics industry to address plastic resin pellet pollution; work with Local Government and catchment groups to reduce litter entering rivers, tributaries and drains which transport litter to the ocean.

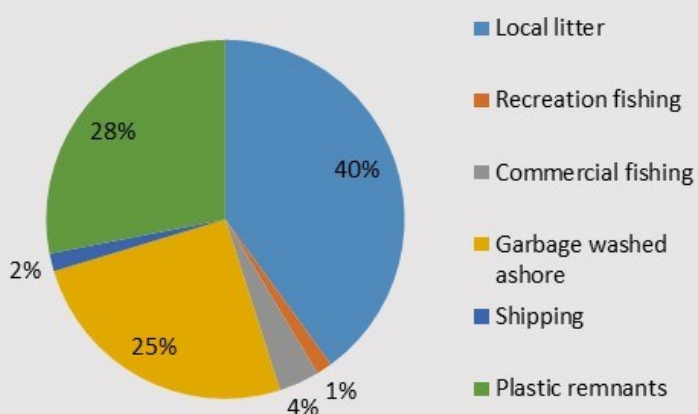
**Major sources:** Predominantly recreational beach users.



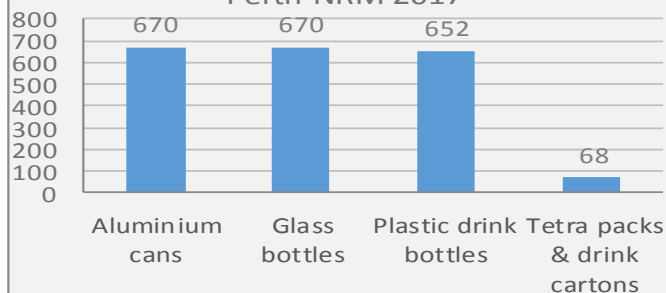
Two Rocks Yanchep Emergency Scouts had fun cleaning up Leeman's Landing Dog Beach and were surprised how much rubbish they found.

Top 10 items 2017 (* CDS items in bold)	Sum of	% of total
Cigarette butts & filters	6149	15%
Plastic film remnants (bits of plastic bag, wrap etc)	6033	15%
Plastic bits & pieces hard & solid	5156	13%
Paper & cardboard packaging	5125	13%
Plastic packaging food (wrap, packets, containers)	2582	6%
Straws, confection sticks, cups, plates & cutlery	2282	6%
Glass or ceramic broken	1677	4%
Rope & net scraps less than 1 metre	914	2%
Lids & tops, pump spray, flow restrictor & similar	901	2%
Metal bottle caps, lids & pull tabs	737	2%

Percentage of debris sources Perth NRM



Container Deposit Scheme items  
Perth NRM 2017



Average of items collected per km of clean up  
Perth NRM 2017





## Northern Agriculture Catchments Council

**Summary:** Commercial fishing and garbage washed ashore contribute the greatest number of items to marine debris in this region. Local sources of litter are also significant. There is a moderate density of overall debris, and the community involvement in beach clean-ups is growing.

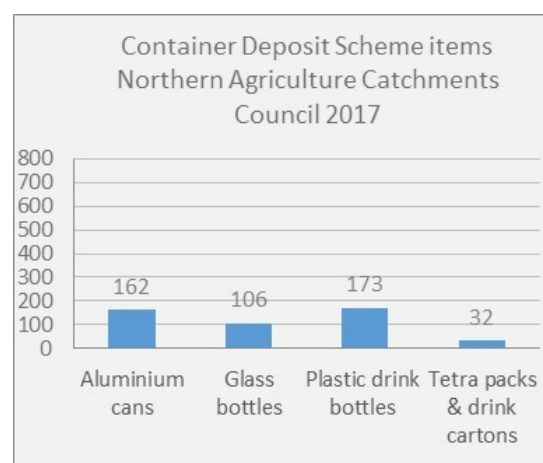
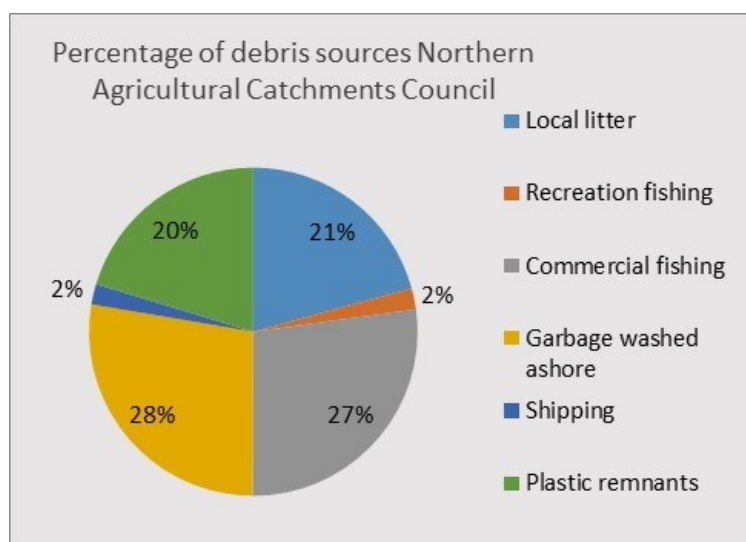
**Options for action:** Strategies for reducing commercial fishing gear loss; identification and remediation program for coastal hotspots especially where fishing gear accumulates; education and awareness programs to reduce local litter.

**Major sources:** Commercial fishing gear losses; garbage from offshore.



Carnarvon Youth Service conducted a clean-up at Dirk Hartog Island.

Top 10 items 2017 (* CDS items in bold)	Sum of total	% of total
Rope & net scraps less than 1 metre	1350	14%
Plastic film remnants (bits of plastic bag, wrap etc)	1030	10%
Plastic bits & pieces hard & solid	989	10%
Cigarette butts & filters	668	7%
Plastic packaging food (wrap, packets, containers)	639	6%
Rope (estimated length in metres)	534	5%
Paper & cardboard packaging	393	4%
Glass or ceramic broken	393	4%
Commercial fishing remnants (float, pot, crate bits)	353	4%
Foam insulation & packaging (whole and remnants)	340	3%



## Rangelands

**Summary:** This region is the largest and most sparsely populated NRM region. Nearly half of all marine debris collected was locally sourced.

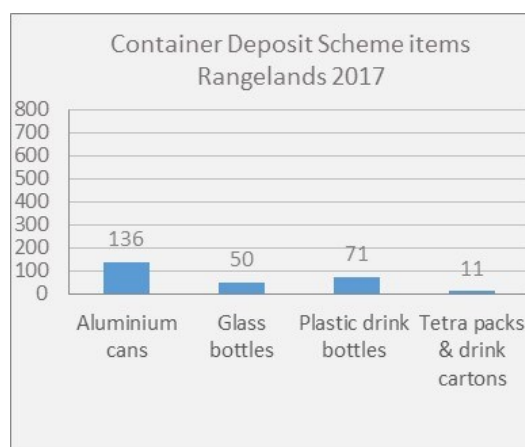
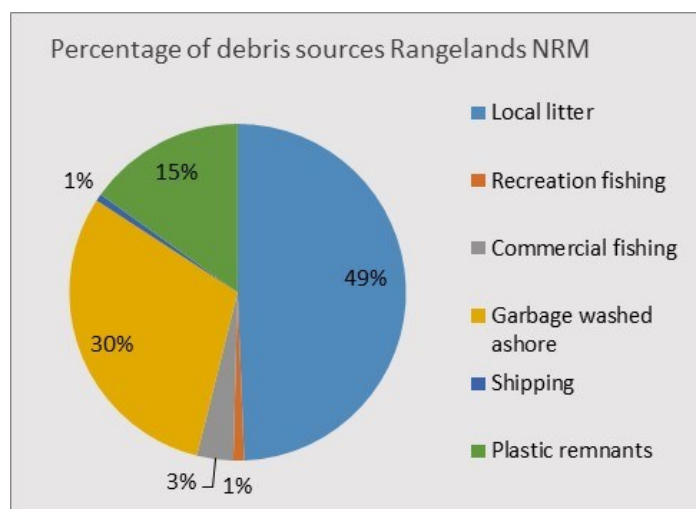
**Options for action:** Education and awareness programs to reduce local litter; collaboration with other regions on commercial fishing debris, coastal hotspot remedial action, litter prevention around the towns.

**Major sources:** Predominantly recreational beach users.



Pilbara Ports Authority tackled 6 Mile Beach in Port Hedland, with 25 people lending a hand.

Top 10 items 2017 (* CDS items in bold)	Sum of	% of total
Cigarette butts & filters	329	14%
Plastic packaging food (wrap, packets, containers)	319	14%
Plastic bits & pieces hard & solid	217	9%
Paper & cardboard packaging	161	7%
Sanitary (tissues, nappies, condoms, cotton buds)	148	6%
Aluminium cans	136	6%
Plastic film remnants (bits of plastic bag, wrap etc)	134	6%
Miscellaneous paper, labels & tickets	115	5%
Cloth, clothing, hats & towels	84	4%
Plastic drink bottles (water, juice, milk, soft drink)	71	3%



## Indian Ocean Territories (Cocos Keeling and Christmas Islands)

**Summary:** The amount of marine debris collected from the Cocos Keeling Islands is still staggering. It has more than any other WA NRM region and may have the largest of all Australian islands.

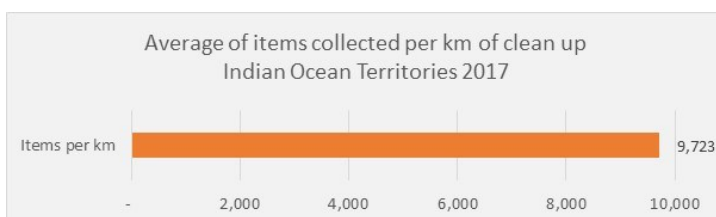
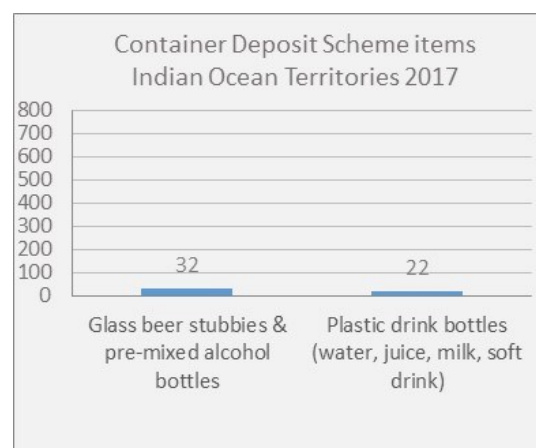
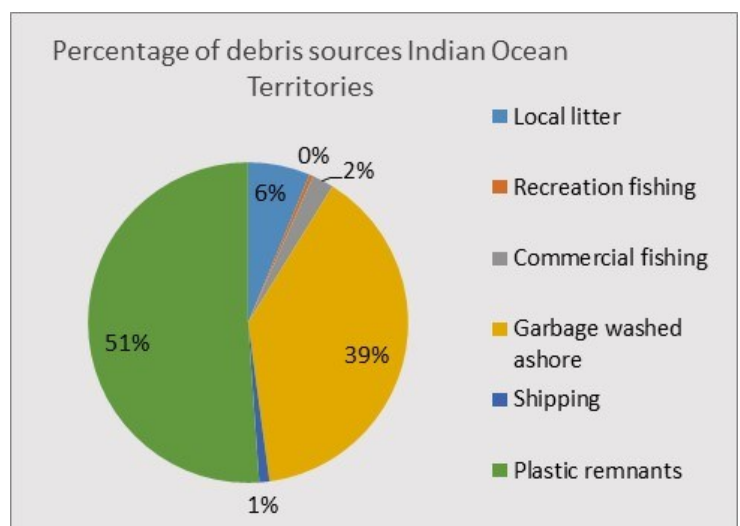
**Options for action:** Indian Ocean Territories are remote regions in need of ongoing support to address very high levels of marine debris.

**Major sources:** Garbage and plastic remnants washed ashore. This comes from the South Equatorial Current with debris coming from South East Asia and from Southern Indian Ocean latitudes conveyed by the West Australian Current depending on the time of year.



Volunteers on Cocos (Keeling) Islands sorting through the large amount of marine debris collected.

Top 10 items 2017 (* CDS items in bold)	Sum of total	% of total
Plastic bits & pieces hard & solid	3099	49%
Lids & tops, pump spray, flow restrictor & similar	1000	16%
Straws, confection sticks, cups, plates & cutlery	721	11%
Plastic packaging food (wrap, packets, containers)	331	5%
Personal care & pharmaceutical packaging	294	5%
Rubber footwear & thongs	186	3%
Rope & net scraps less than 1 metre	125	2%
Plastic film remnants (bits of plastic bag, wrap etc)	113	2%
Cigarette lighters	81	1%
Toys, party poppers, ribbons, clips & similar	75	1%





# Getting to work on regional marine debris management

## Approach

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 6 coastal natural resource management regions in Western Australia (Figure 1). Different regions have different sources of debris and therefore different approaches to management will be appropriate.

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.

## Strategies

Strategy A: For regions just getting started on the marine debris issue:

- Identify a person, position or group who are able and prepared to keep an eye on local marine debris issues
- Support background activities such as clean-up events, education programs and source reduction activities

Strategy B: For regions with some experience in marine debris activities:

- Identify a person, position or group who are able and prepared to coordinate marine debris activities in the region
- Consider or continue items under Strategy A
- Consider regular monitoring of identified hotspot areas
- Find ways to target local activities to hotspot areas
- Find ways of incorporating an ongoing marine debris component into existing activities and processes

Strategy C: For regions with larger towns and cities:

- Establish a stakeholder group which is prepared to undertake substantial coordination activities in the region
- Consider or continue items under Strategies A and B
- Consider developing a regional marine debris monitoring plan <http://www.tangaroablue.org/resources/reports/category/17-nsw.html>
- Consider supporting or developing industry management plans for specific waste issues

Strategy D: For remote regions:

- Consider items under Strategy A
- Develop local awareness of marine debris presenting environmental, quarantine and similar issues
- Consider partnerships with other regions to tackle sources such as commercial fishing
- Consider supporting the creation of a regional management plan for the monitoring, collection, disposal and supportive actions towards mitigation.

## Strategic directions

### WA Container Deposit Scheme

The WA Government have committed to introduce a container deposit scheme by 2020. Under the scheme, a 10-cent refund will be available for anyone who returns an empty eligible beverage container to an approved collection depot or reverse vending machine. Introduction of the scheme will bring WA into line with Queensland and the Australian Capital Territory, which announced their intention to implement a container deposit scheme, and South Australia, New South Wales and the Northern Territory which have existing schemes.

### Plastic bag bans

A statewide ban on single-use lightweight plastic shopping bags has been implemented in Western Australia as of July 1 2018. The ban on plastic bags bring WA into line with SA, the ACT, and the Northern Territory, which have all banned shops from selling or giving away lightweight plastic bags. It is important to remember that plastic bags eventually shred into plastic film fragments, so it is important to include data on film remnants when measuring the impact of plastic bags in the environment.

### Commercial fishing

Tangaroa Blue aims to work with the WA commercial fishing industry to identify opportunities to reduce the loss of gear and to reduce the potential for fishing gear, such as floats, to break up into smaller pieces, thereby creating a risk of ingestion for marine life. Potential options include improving practices to ensure that landing tags are not lost at the processing facility due to poor handling. Further research into the materials used for commercial fishing gear may also identify opportunities for alternative materials for items that regularly break apart.



Many hands make light work at the Keep Australia Beautiful WA coordinated clean-up at Hillarys in Perth .

## Acknowledgements

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

A heartfelt thanks is extended to everyone that participated in the 2017 WA Beach Clean-up. The following community groups supported the event:

Apex Club of Albany	Pilbara Ports Authority
Birdlife Australia	Prevelly Penguins
Boranup Board Riders	Pullman Bunker Bay Resort
Busselton Senior High School	Responsible Runners Bunbury
Butler College Bush Rangers	Scotch College Junior School
Care for Hedland Environmental Association	Sea Shepherd
Carnarvon Community College Bushrangers	Seabird Progress Association
Cocos Island Youth Council	Singleton Coastcare
Community volunteers	Tangaroa Blue Foundation
Cornerstone Christian School	Track Care WA
Cottesloe Coastcare Association	Undalup Association
Dunsborough Primary School	Underwater Explorer's Club of WA
Eyre Bird Observatory	US Consul General
Falcon Coastcare	Waggrakine Primary School
Friends of Redgate	William Bay National Parks Association Inc.
Hopetoun Progress Association	Yallingup LCDC
Iluka Resources	Young Naturalists Club
Keep Australia Beautiful WA	
Kennedy Bay Coastcare	
Lumen Christi College	
Margaret River Regional Environment Centre	
Meelup Regional Park Volunteers	
Methodist Ladies College	
Mullaloo Beach Primary School	
Northern Agricultural Catchments Council	
Peel-Harvey Catchment Council	
Pemberton Discovery Tours	
Perth Advocates for the Earth Inc.	