



Project Data Report

Community Sustainability Action Grant Round 2

Keep Far North Queensland Marine Debris Free

Project Final Report January 2018 – December 2019

INTRODUCTION

The Keep Far North Queensland Marine Debris Free project* has enabled clean-ups to be conducted at six locations, three in the Cape York region and three in the Far North Queensland region during the 2018 and 2019 calendar years. The six locations, some of which involved several local clean-up sites are further described below. These clean-ups achieved the removal of substantial quantities of marine debris which were recorded and entered into the Australian Marine Debris Initiative Database.

The project results have allowed some observations to be made. A basic comparison of the kinds of items and their origins recorded from the Cape York and Far North Queensland regions shows that both regions share some of the items which can be said to be universally present and abundant across regions, while they also have a different set of items which reflect different sources for the remote locations in Cape York and the populated locations in Far North Queensland. Cape York locations also receive substantially more marine debris than their Far North Queensland counterparts. Cape York represents roughly 40% of the coastline adjacent to the Great Barrier Reef and about 90% of the debris arriving here is from offshore sources including fishing, shipping and debris from other countries. Far North Queensland, while sharing those offshore sources, also acts as a source of debris with about 54% of all recorded debris coming from local sources.

The project has enabled the removal of substantial amounts of marine debris from coastal beaches adjacent to the Great Barrier Reef and it has enabled the continuing development of a picture of the marine debris processes affecting the reef and the accumulation of data for further research and management needs. Valuable data on plastic bags and container refund items have also been collected during the project.

Tangaroa Blue Foundation expresses its appreciation for this work being made possible through this grant.

Following is a summary of project outcomes, and some basic analysis of the data collected. A list of items collected at each site is also provided in the spreadsheet accompanying this report.

*The project title uses the name Far North Queensland in a generalised way but the analysis in this report makes the distinction between Cape York clean-up locations and Wet Tropics clean-up locations, referring to the latter as the Far North Queensland clean-up locations





PROJECT LOCATIONS

Locations

Table 1 shows the six locations together with the number of local sites cleaned at those locations in each year.

Table 1: Project locations and individual clean-up sites

		Number of local sites cleaned and recorded	
Region	Location	2018	2019
Cape York	Archer Point	6	5
Cape York	Cape Bedford	2	2
Cape York	Walker Bay	1	1
Far North Queensland	Cooya Beach	1	1
Far North Queensland	Four Mile Beach	2	2
Far North Queensland	Yule Point	1	1

Map 1: Project locations



Locations with more than one clean-up site

The Cape Bedford, Archer Point and Four Mile Beach locations each had more than one local site cleaned and recorded. This was done to retain the consistency of data recording in those locations while also meeting the project requirements. The maps following show the sites at the three locations.



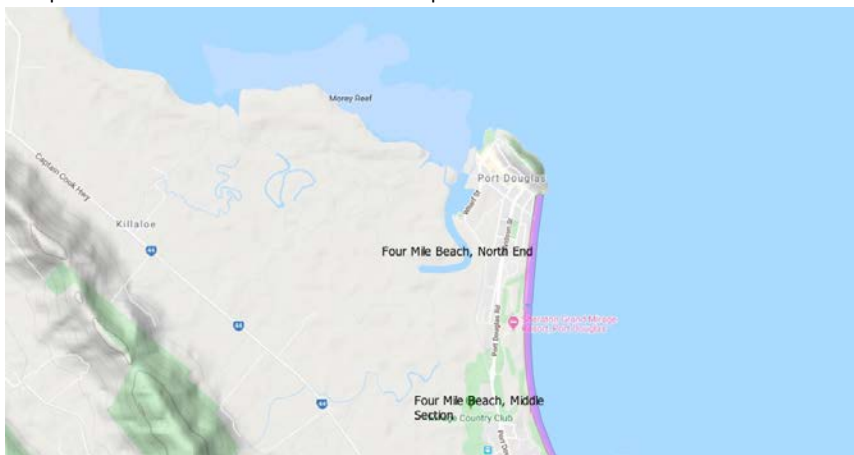
Map 2: Cape Bedford clean-up sites



Map 3: Archer Point clean-up sites



Map 4: Four Mile Beach clean-up sites





SUMMARY OF PROJECT ACTIVITY

Table 2: Project events and results 2018 - 2019

Clean-up summary by region and location								
Region	Location	Project event note	Project events	Clean-up days	Total items	Weight KG	Volunteers	Distance m
Cape York	Archer Point	1 visit per year to location	2	2	7,058*	728	108	2,105
Cape York	Cape Bedford	1 five-day visit per year to location	2	10	76,825	2,557	20	4,186
Cape York	Walker Bay	1 visit per year to location	2	2	7,434*	595	85	3,340
Far North Queensland	Cooya Beach	1 visit per year to location	2	2	522	45	9	2,000
Far North Queensland	Four Mile Beach	12 visits per year to location	24	33	38,627	747	484	3,550
Far North Queensland	Yule Point	1 visit per year to location	2	2	2,727	403	32	1,140
			34	52	133,193	5,075	738	16,321

*A full count of items was not logistically possible for the clean-ups in 2018 at Archer Point First Beach East and West and at Walker Bay and the figures in Table 2 are the actual count of items but not extrapolated. Extrapolated figures for these sites are included in Figures 1 and 2 with the extrapolation being based on the weight of counted and uncounted items.

In Table 2, a project event is one visit to a project location. All locations were visited once in each year except for Four Mile Beach which was visited monthly over the two years. Clean-up days are the number of days each visit involved. All sites except for Cape Bedford and Four Mile Beach had visits occurring on one day. Cape Bedford was a 5 day visit each year and the two sites at Four Mile Beach were sometimes visited on the same day (15 visits on the same day) and sometimes visited on different days (18 visits on different days).

Overall debris loads varied between the two years. Comparing 2019 to 2018, in Cape York, Cape Bedford had an increase in the number of items removed and a substantial increase in the overall weight of debris removed. Walker Bay had a substantial decrease in the number of items removed while the overall weight varied only slightly. Archer Point also showed a decrease in items removed and in weight. (Data from the two long term monitoring sites at Archer point were used while data from the remaining local sites which were also cleaned was excluded. In 2018 weight and volume data only were collected due to the capacity on the day.)

In Far North Queensland, Yule Point and Cooya Beach show a slight decrease in debris removed while Four Mile Beach shows a slight increase.

The graphs following show these results.



Figure 1: Items per hectare by clean-up site and year

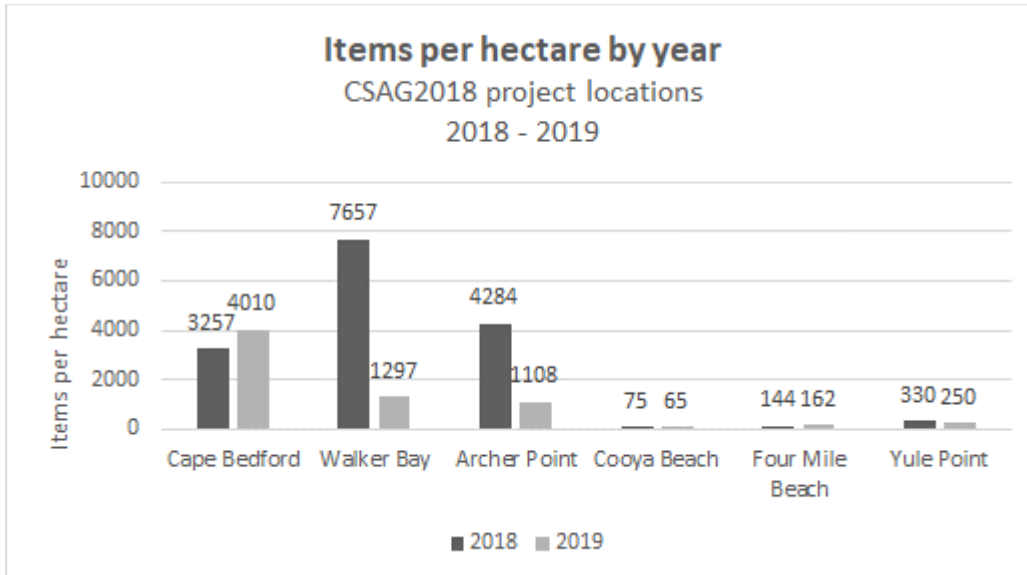
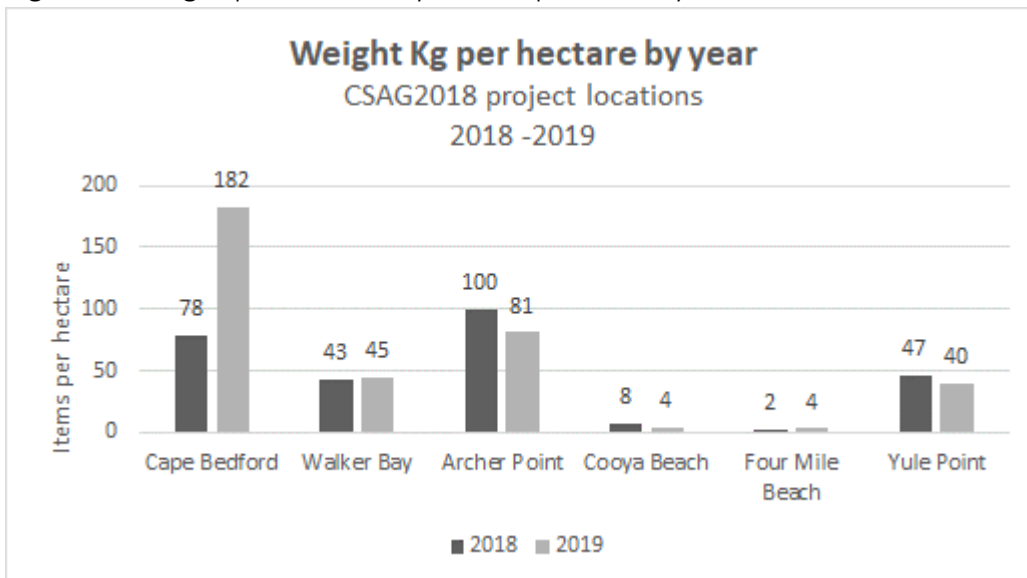


Figure 2: Weight per hectare by clean-up site and year





PROJECT STATISTICS

The top 3 items, and a breakdown of plastic bag types, balloon components and container refund items have been reported during the project period and are of current interest. The following tables show the overall results for the two years.

Top ranking items

Table 3: Top 3 items by project site

Top 3 items by location and year			
	1	2	3
Cape Bedford 2018	Plastic bits & pieces hard & solid	Lids & tops, pump spray, flow restrictor & similar	Plastic drink bottles (water, juice, milk, soft drink)
Cape Bedford 2019	Plastic bits & pieces hard & solid	Lids & tops, pump spray, flow restrictor & similar	Rope & net scraps less than 1 metre
Walker Bay 2018	Plastic bits & pieces hard & solid	Lids & tops, pump spray, flow restrictor & similar	Plastic film remnants (bits of plastic bag, wrap etc)
Walker Bay 2019	Plastic bits & pieces hard & solid	Plastic film remnants (bits of plastic bag, wrap etc)	Lids & tops, pump spray, flow restrictor & similar
Archer Point 2018	Plastic bits & pieces hard & solid	Lids & tops, pump spray, flow restrictor & similar	Plastic drink bottles (water, juice, milk, soft drink)
Archer Point 2019	Plastic bits & pieces hard & solid	Lids & tops, pump spray, flow restrictor & similar	Foam insulation & packaging (whole and remnants)
Cooya Beach 2018	Aluminium cans	Plastic bits & pieces hard & solid	Lids & tops, pump spray, flow restrictor & similar
Cooya Beach 2019	*Fishing line in metres commercial (monofilament)	Foam insulation & packaging (whole and remnants)	Plastic bits & pieces hard & solid
Four Mile Beach 2018	Plastic bits & pieces hard & solid	Lids & tops, pump spray, flow restrictor & similar	Cigarette butts & filters
Four Mile Beach 2019	Plastic bits & pieces hard & solid	Lids & tops, pump spray, flow restrictor & similar	Plastic film remnants (bits of plastic bag, wrap etc)
Yule Point 2018	Plastic bits & pieces hard & solid	Aluminium cans	Plastic film remnants (bits of plastic bag, wrap etc)
Yule Point 2019	Plastic film remnants (bits of plastic bag, wrap etc)	Glass or ceramic broken	Aluminium cans

*50m of commercial fishing line was recorded in the Cooya Beach 2019 visit and this was enough to make it the top items, but this is unusual for this site.



Plastic bags

Table 4 shows that a wide range of plastic bag types are found in the populated locations in Far North Queensland but not in Cape York. This item can sink, snag and be torn apart by mechanical and wildlife interaction before being transported very far from release points. The plastic bags found in Cape York are more likely to have offshore origins given the remoteness of the locations while the bags found in Far North Queensland are of a more varied type, found in built areas and likely to be of local origin.

Table 4: Breakdown of plastic bag types (raw numbers)

Plastic bag types by clean-up location and year												
	Cape Bedford 2018	Cape Bedford 2019	Archer Point 2018	Archer Point 2019	Walker Bay 2018	Walker Bay 2019	Cooya Beach 2018	Cooya Beach 2019	Four Mile Beach 2018	Four Mile Beach 2019	Yule Point 2018	Yule Point 2019
Grey shopping							4		9	3	14	2
White shopping				1			2	1	3	6	6	
Blue shopping									1	1		
Fruit & veg bag							2		2	11	2	
Ice bag								1	3	0	4	1
Ziplock bag		15					3	1	14	5	1	2
Dog poo bag									12	38		1
Other plastic bag	16		1				3		9	32	9	2
Total plastic bags	16	15	1	1	0	0	14	3	53	96	36	8

The percentages in Table 5 are based on the totals from Four Mile Beach in Table 4 and suggest that banned plastic bags are declining and unbanned bags are increasing. Dog poo bags and other plastic bags have increased substantially over the two years. Several more years of monitoring should confirm these plastic bag trends.

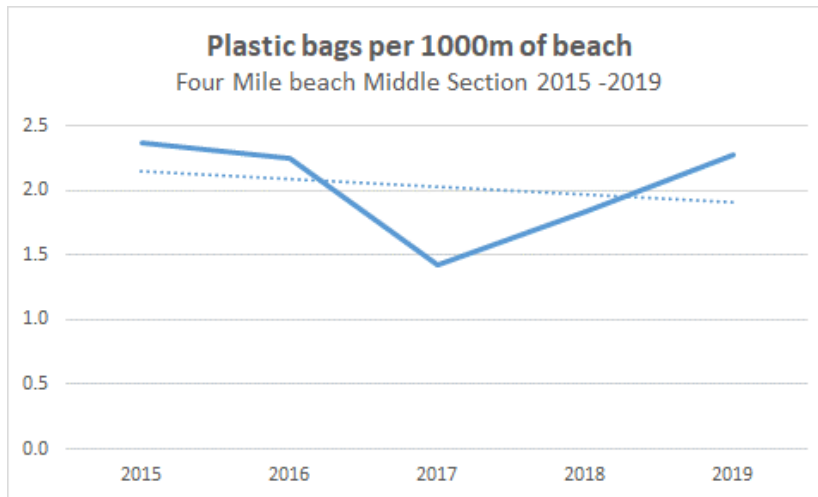
Table 5: Percentage of banned and not banned bags from Four Mile Beach (Table 4)

	Four Mile Beach 2018	Four Mile Beach 2019
Grey shopping	17%	3%
White shopping	6%	6%
Blue shopping	2%	1%
Totals banned bags	25%	10%
Fruit & veg bag	4%	11%
Ice bag	6%	0%
Ziplock bag	26%	5%
Dog poo bag	23%	40%
Other plastic bag	17%	33%
Totals bags not banned	75%	90%



The longer-term trend for undifferentiated plastic bags has been increasing noticeably since 2017 (see Figures 3 and 6).

Figure 3: Plastic bags per 1000m of beach, Four Mile Beach Middle Section 2015 - 2019



Balloons and accessories

Table 6 shows balloons being recorded more frequently in Far North Queensland where balloon releases are more likely to occur. The numbers recorded in Cape York may be the result of releases but could also be explained by airborne transport and by the increasing use of balloons in recreational fishing.

Table 6: Breakdown of balloon item types

Balloon types and accessories by clean-up location												
	Cape Bedford 2018	Cape Bedford 2019	Walker Bay 2018	Walker Bay 2019	Archer Point 2018	Archer Point 2019	Cooya Beach 2018	Cooya Beach 2019	Four Mile Beach 2018	Four Mile Beach 2019	Yule Point 2018	Yule Point 2019
Rubber balloons	6	11		1	1				21	16		2
Foil balloons												
Balloon ribbons & clips		1					1		9	2		
Total balloon items	6	12	0	1	1	0	1	0	30	18	0	2



Container refund items

Container refund items show a decline in 2019 compared to 2018 (Figure 4). This can be partly attributed to the Container Refund Scheme, but continued monitoring is needed over the next few years to confirm this. The trends shown in Figures 5 and 6 describing the longer-term trend for Container Refund Scheme items and overall debris load at Four Mile Beach Middle Section suggest a changing situation where several factors may be at play.

Figure 4: Selected Container Refund Scheme items by project and year

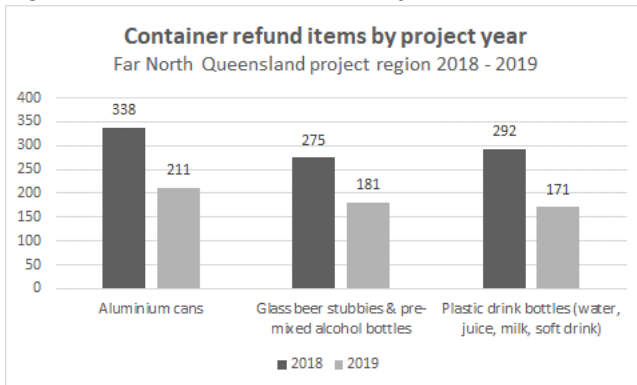


Figure 5: Container Refund Scheme items per 1000m of Beach, Four Mile Beach 2015 - 2019

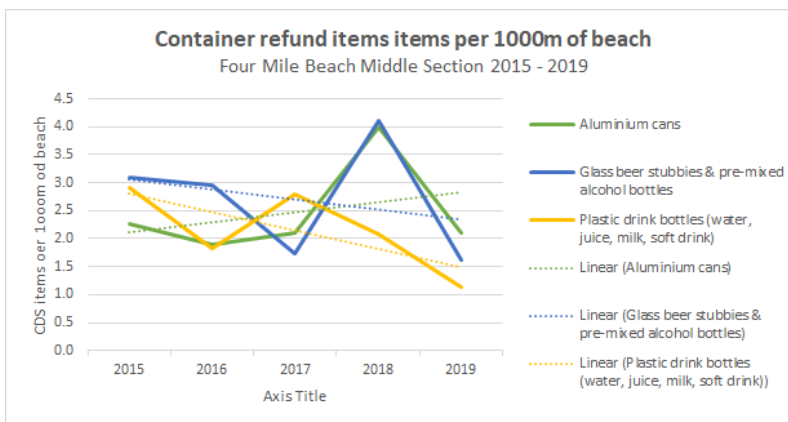
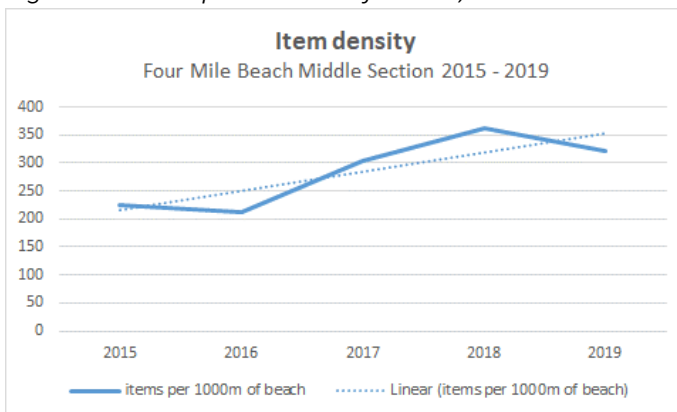


Figure 6: Items per 1000m of Beach, Four Mile Beach Middle Section 2015 - 2019





COMPARISON OF PROJECT REGIONS

There are differences between the mix of items found in Far North Queensland and Cape York and these differences suggest different approaches to management of the issue based at their sources.

In the tables below the blue items are common and abundant in both Cape York and Far North Queensland. This group of items can be said to be universal across regions. The red items are the more common and abundant items more usually found in one region but not the other. In Cape York, those latter items have an offshore origin while in Far North Queensland they tend to be associated with local sources.

Table 7: Top ranking items Cape York

Top 10 items Cape York				
Rank	Region	Item	Total	Percent
1	Cape York	Plastic bits & pieces hard & solid	47,889	52%
2	Cape York	Lids & tops, pump spray, flow restrictor & similar	13,659	15%
3	Cape York	Plastic drink bottles (water, juice, milk, soft drink)	4,345	5%
4	Cape York	Rubber footwear & thongs	2,694	3%
5	Cape York	Rope & net scraps less than 1 metre	2,450	3%
6	Cape York	Plastic film remnants (bits of plastic bag, wrap etc)	2,341	3%
7	Cape York	Foam insulation & packaging (whole and remnants)	2,232	2%
8	Cape York	Personal care & pharmaceutical packaging	1,488	2%
9	Cape York	Bleach & cleaner bottles	1,205	1%
10	Cape York	Rubber remnants	1,087	1%
			79,390	87%

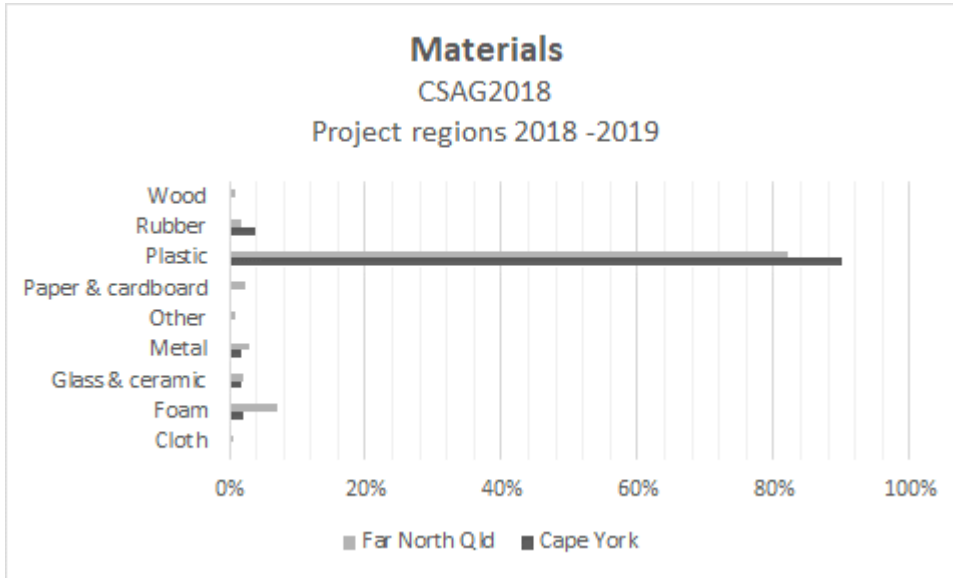
Table 8: Top ranking items Far North Queensland

Far North Queensland				
Rank	Region	Item	Total	Percent
1	Far North Qld	Plastic bits & pieces hard & solid	19,718	47%
2	Far North Qld	Lids & tops, pump spray, flow restrictor & similar	3,544	8%
3	Far North Qld	Plastic film remnants (bits of plastic bag, wrap etc)	2,448	6%
4	Far North Qld	Foam insulation & packaging (whole and remnants)	2,399	6%
5	Far North Qld	Cigarette butts & filters	2,107	5%
6	Far North Qld	Plastic packaging food (wrap, packets, containers)	1,122	3%
7	Far North Qld	Miscellaneous paper, labels & tickets	984	2%
8	Far North Qld	Straws, confection sticks, cups, plates & cutlery	955	2%
9	Far North Qld	Rope & net scraps less than 1 metre	689	2%
10	Far North Qld	Aluminium cans	549	1%
			34,515	82%



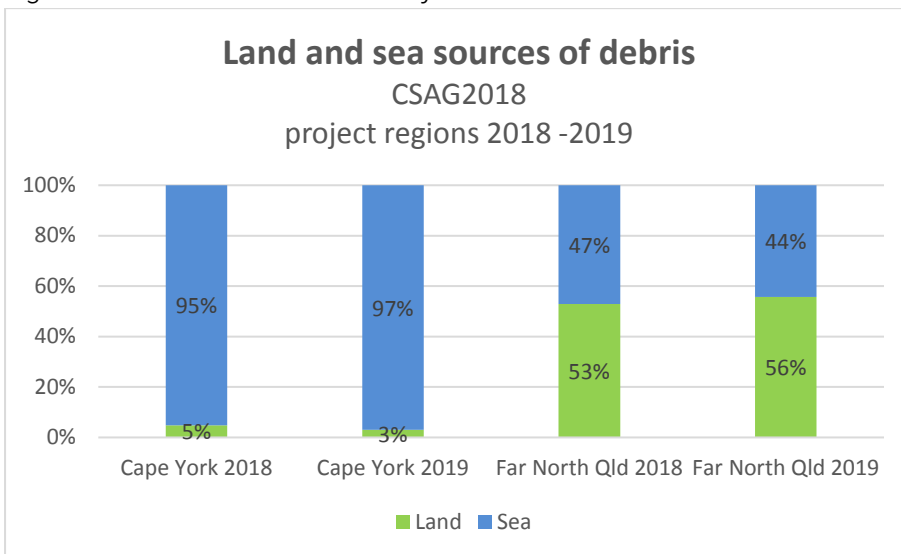
In the materials graph below, Cape York shows more plastic and rubber items while Far North Queensland shows more of the materials associated with local sourced litter such as glass, metal and paper.

Figure 7: Material composition of debris



The Land and Sea Source graph shows the stark difference between the two regions in terms of estimated origin of debris. Source reduction actions in Cape York require the addressing of shipping, fishing and debris sources in other countries whereas local actions to address local sources are more appropriate in the Far North Queensland region.

Figure 8: Land and Sea Sources of Debris





WILDLIFE

No occurrences of dead or injured wildlife were reported.

ACKNOWLEDGMENTS

Tangaroa Blue Foundation thanks the Queensland Department of Environment and Science for making this work possible through its Community Sustainability Action Grants.

Thanks are also extended to our partners and supporters who contributed generously toward completing this project.

A big thank you to:

Carpe Diem Education	Mossman State High School
Cisco Australia	Oceanum
Community volunteers	Saltwater Tribe
Conservation Volunteers Australia	Sheraton Port Douglas
Cook Shire	South Cape York Catchments
Cooktown State High School	Tangaroa Blue Foundation
Douglas Shire Council	University of Ohio
Elim Beach Campground	Wavelength Reef Cruises
Green Army	Westpac
Hemingway's Port Douglas	Yuku Baja Muliku Rangers
Hope Vale Congress Rangers	
Hope Vale Aboriginal Shire Council	