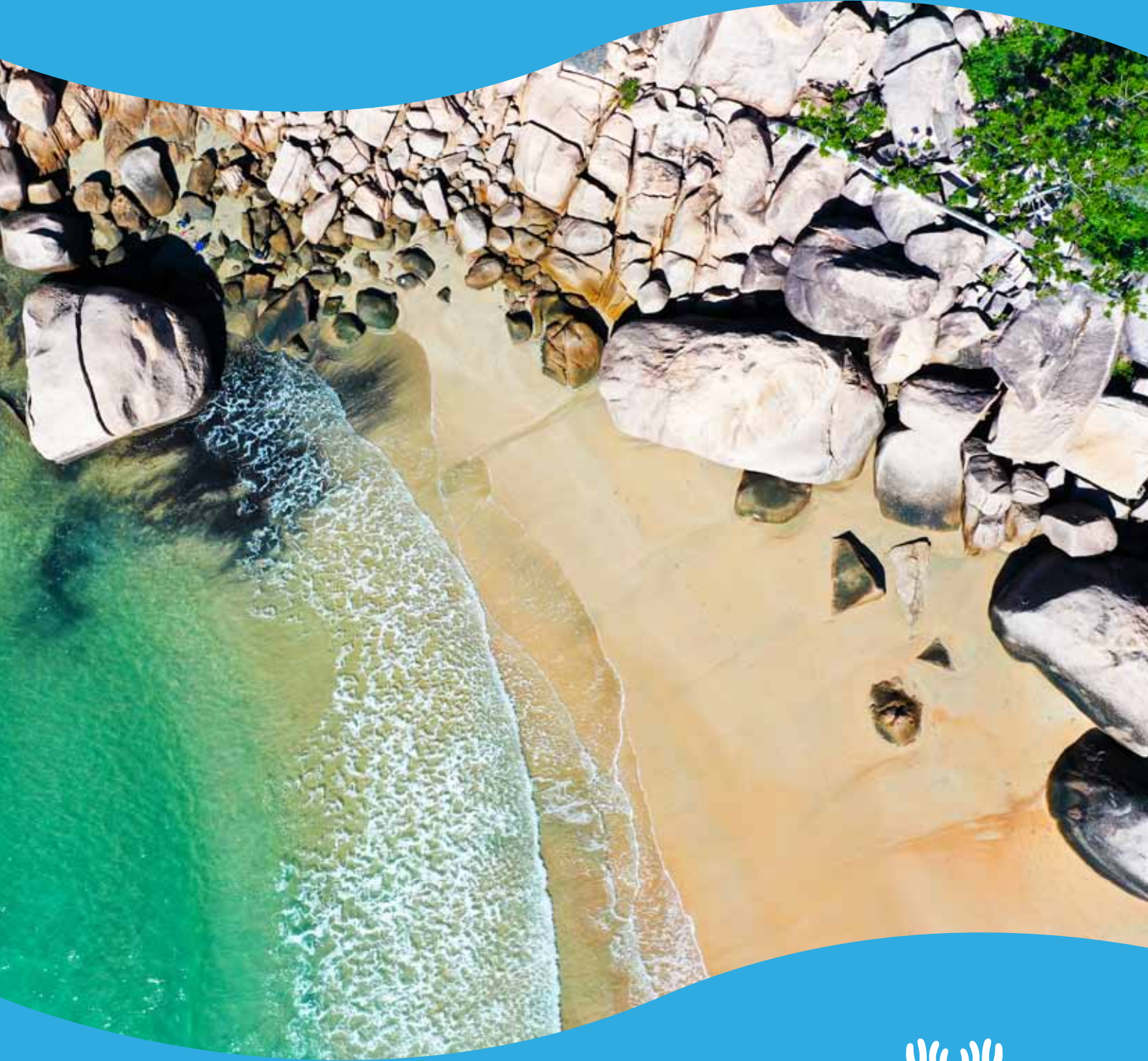


ReefClean 2020

Tackling marine debris pollution impacting
the Great Barrier Reef



ReefClean is funded by the Australian Government's Reef Trust



AUSTRALIAN
MARINE DEBRIS INITIATIVE



ReefClean

Educate • Reduce • Prevent

Tangaroa Blue Foundation would like to acknowledge the First Nations people as the traditional custodians 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.



*Above: Cape York coastline during the 2020 helicopter survey.
Cover Photo: Alma Bay, Magnetic Island. Credit / Reef Check Australia/ ReefClean*

ReefClean is funded by the Australian Government's Reef Trust and delivered by Tangaroa Blue Foundation in partnership with Reef Check Australia, Eco Barge Clean Seas, Capricornia Catchments, South Cape York Catchments, OceanWatch Australia and AUSMAP.



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Introduction

The Reef 2050 Long-Term Sustainability Plan 2018 (<https://www.environment.gov.au/marine/gbr/long-term-sustainability-plan>) lists 4 major influencing factors in assessing the risk of current and potential threats to the Great Barrier Reef. These are climate change, land-based runoff, coastal land use change and direct use. Marine debris as a threat is addressed in the plan under the influencing factors of land-based runoff and direct use.

Land based runoff concerning the quality of water entering the reef has deteriorated over time. The presence of plastic waste has become significant, joining the sediment, herbicide and other components of runoff in rivers and drains as major threats to reef health (Kroon et al 2016 Identification, impacts, and prioritization of emerging contaminants present in the GBR and Torres Strait marine environments).

Direct use - legal and illegal human activities on the reef and its coastal margins - introduces various forms of marine debris including consumer items, shipping waste and fishing gear into the reef environment.

The reef is vast with many variables influencing the abundance and distribution of marine debris. In a very general sense transport of marine debris within and across the reef is influenced by the South Equatorial Current which bifurcates in the region of central Cape York and flows north as the Hiri Current and south as the East Australian Current (Map 1). South Easterly trade winds blowing for the greater part of the year drive floatable marine debris, caught up in these currents, across the reef and into the coast. Country of origin labelling shows that nonlocal marine debris affecting the reef originates from Papua New Guinea, the island nations of the Western Pacific and well beyond. It can originate from discharge of waste from vessels and loss of fishing gear occurring throughout the reef and the wider Pacific region. Land based sources of marine debris come from dumping, littering and waste management issues on the coast, or via runoff from rivers and drains. Cyclones and floods introduce an element of chaos when they amplify debris loads from these various sources and uncover and recirculate buried or sunken debris and this will process will intensify as the frequency and intensity of cyclones and flood events increases due to climate change.

When the community is engaged in clean-up activities using a common data collection methodology it becomes possible to build a dataset covering regional and larger scales. Data generated by community efforts can be used to calculate and estimate different aspects of marine debris including abundance, prevalence of different items and possible sources. These measures and estimates are not always perfect but with increasing volumes of data they provide enough data to gain an insight on marine debris that may not otherwise be available at the scale of regions such as the Great Barrier Reef. The data is used to inform source reduction planning at a local level and enable the monitoring of government policies and initiatives at regional and higher levels.

Prevention or mitigation of the impacts of various types of plastic marine debris is the focus of information obtained from these data collection efforts. Between 2019 and 2023 the ReefClean project will conduct marine debris removal, monitoring and source reduction activities in the six NRMs along the reef. This report is produced annually to provide a summary of the data collected and track the progress of the ReefClean efforts.



Map 1: Schematic representation of major ocean currents in the GBR region

ReefClean

ReefClean is a five-year project funded through a competitive tendering process which coordinates community clean-up events and education and awareness raising activities to reduce marine debris in the Great Barrier Reef World Heritage Area. Commencing in 2019 the project is coordinated by Tangaroa Blue Foundation www.tangaroablue.org in partnership with Reef Check Australia, AUSMAP, Eco Barge Clean Seas, Capricornia Catchments, South Cape York Catchments and OceanWatch Australia, and is funded by the Australian Government through the sixth phase of Reef Trust. (Reef Trust Investment Strategy Phase VI, Commonwealth of Australia 2018)

ReefClean has two main aims;

- To reduce the volume of debris generated in or entering the Great Barrier Reef that may impact listed threatened and migratory species, such as dugongs and turtles, and ecosystems of the Great Barrier Reef.
- To increase awareness in Reef catchment communities about the issue of marine debris and actions they can undertake to prevent litter from entering Reef waterways.

ReefClean work is carried out in the six Natural Resource Management (NRM) regions along the Queensland coast. These are, from north to south, Cape York, Wet Tropics, Burdekin, Mackay Whitsunday, Fitzroy and Burnett Mary. Community clean-ups are being conducted at locations across each NRM according to a project schedule. During October of each year the Great Barrier Reef Clean-up is held. ReefClean conducts six flagship events for the October clean-up, one in each NRM region with the public also being invited to participate via their own self-managed clean-ups and provision of data to the Australian Marine Debris Initiative (AMDII) Database.

Monitoring activities occur in the northern, middle and southern zones of each NRM and involve an estuary and a coastal site in each of these zones except Cape York where estuary locations are excluded. Data collected from the monitoring activities will be analysed during the life of the project by the ReefClean scientific team at the University of New South Wales.

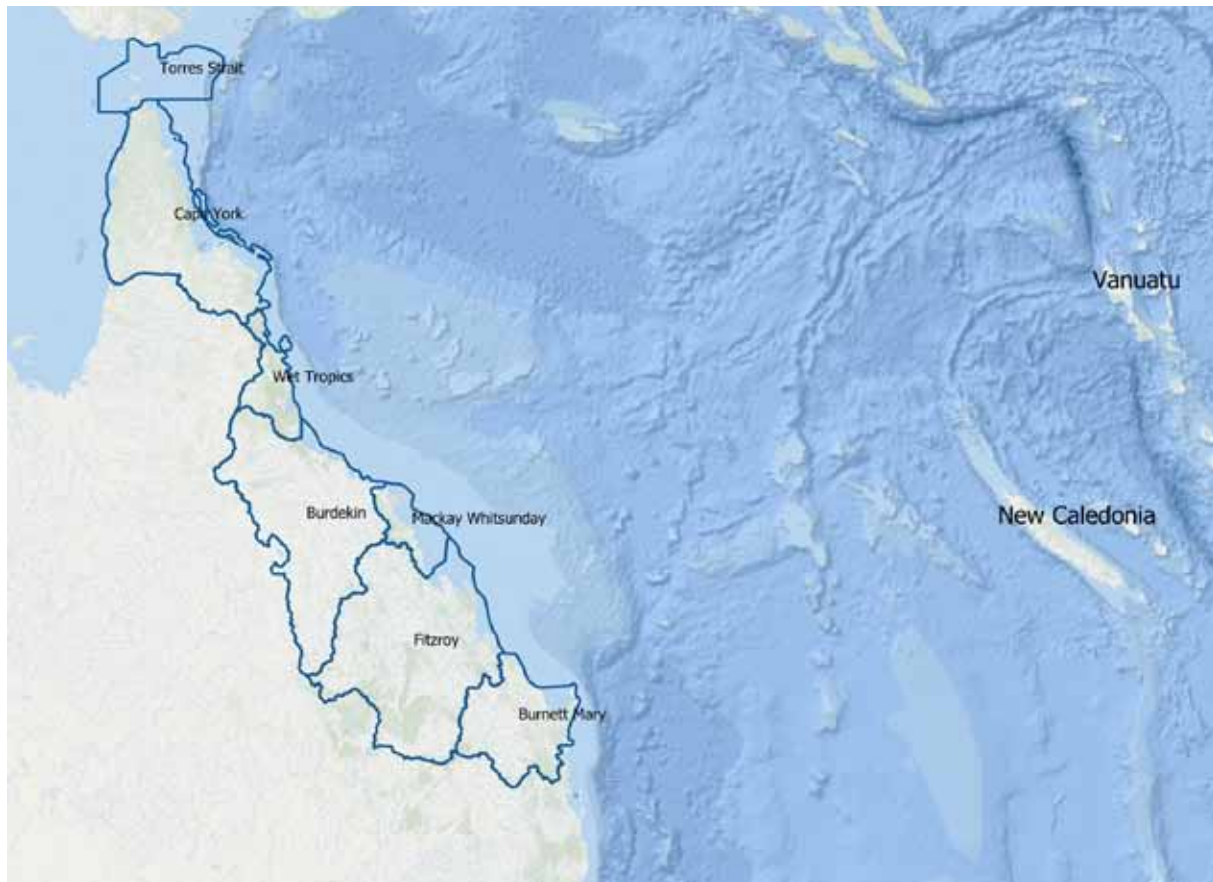
AUSMAP has conducted microplastic surveys in each NRM region for the ReefClean project and the results of these are contained in the separate AUSMAP report "Review of Microplastics across GBR Catchments 2020".

Source reduction plan workshops and other education and awareness raising activities are conducted in each NRM region based on consultations with communities and Traditional Custodians. Source reduction plans underway during 2020 include: Ditch the Flick, Look After Your Tackle, Don't Dump on our Reef, Lose Ya Lid, Litter Hero and Operation Clean Sweep®.

With almost all debris coming from offshore, the focus in remote areas is on removal and sustainable disposal of debris removed and on providing data and information in support of government level actions addressing marine debris originating from fishing, shipping and other countries.

ReefClean clean-up activity during 2020 underwent some changes to comply with COVID-19 requirements and restrictions. This mainly resulted in TBF and partners completing work with staff only on those occasions when volunteer participation was not possible.

NRM regions in the Great Barrier Reef World Heritage Area



Where marine debris is accumulating across the GBR

In this section the 2020 ReefClean community clean-up data is compared with the previous 5 years of data (2015 – 2019) from the AMDI Database for each of 4 types of clean-up location. The types of clean-up locations are:

- a) coastal beaches in built areas
- b) coastal beaches away from built areas
- c) populated islands
- d) remote and protected islands.

Figures 1 and 2 show the data in graph form. Items per hectare is used to express the abundance of marine debris in the different coastal types within the NRMs. Please also note that in calculating the hectare figures for the items per hectare data, an average width of 40 metres is used (revised figure from historic data in the AMDI Database). Data used for the ReefClean 2020 section of tables 1 and 2 and figures 1 and 2 is from ReefClean community clean-up activities with monitoring, source reduction and underwater clean-up data excluded.

Table 1: Item density by NRM ReefClean community clean-ups 2020

ReefClean 2020 - Items per hectare - Data							
	Torres Strait	Cape York	Wet Tropics	Burdekin	Mackay Whitsundays	Fitzroy	Burnett Mary
Coastal beaches in built areas	N/A	94	208	313	137	39	306
Coastal beaches away from built areas	N/A	94	379	388	1354	256	No Data
Inhabited islands	671	2412	144	929	1092	153	20
Remote islands	No Data	434	423	489	1652	1122	No Data

ReefClean 2020 - Items per hectare - Percentage across NRMs							
	Torres Strait	Cape York	Wet Tropics	Burdekin	Mackay Whitsundays	Fitzroy	Burnett Mary
Coastal beaches in built areas	No Data	9%	19%	29%	13%	4%	28%
Coastal beaches away from built areas	No Data	39%	10%	10%	35%	7%	No Data
Inhabited islands	12%	44%	3%	17%	20%	3%	0%
Remote islands	No Data	11%	10%	40%	40%	27%	No Data



Helicopter survey Princess Charlotte Bay, Cape York

Table 2: Item density by location type – Previous 5 years (2015 - 2019)

Previous 5 years (2015 - 2019) - Items per hectare - Data							
	Torres Strait	Cape York	Wet Tropics	Burdekin	Mackay Whitsundays	Fitzroy	Burnett Mary
Coastal beaches in built areas	0	124	129	154	413	105	54
Coastal beaches away from built areas	0	1787	334	116	2109	181	84
Inhabited islands	43	352	221	1014	1982	217	30
Remote islands	936	206	254	904	1661	90	No Data

Previous 5 years (2015 - 2019) - Items per hectare – Percentage across NRMs							
	Torres Strait	Cape York	Wet Tropics	Burdekin	Mackay Whitsundays	Fitzroy	Burnett Mary
Coastal beaches in built areas	0%	13%	13%	16%	41%	11%	6%
Coastal beaches away from built areas	0%	39%	7%	3%	41%	4%	2%
Inhabited islands	1%	9%	6%	26%	51%	6%	1%
Remote islands	23%	5%	6%	22%	42%	2%	No Data



South Cape York Catchments Trainees showing good social distancing during their Cooktown North Shore Clean-up.

Figure 1: Comparison of marine debris density by NRM and coastal type – ReefClean community clean-ups 2020

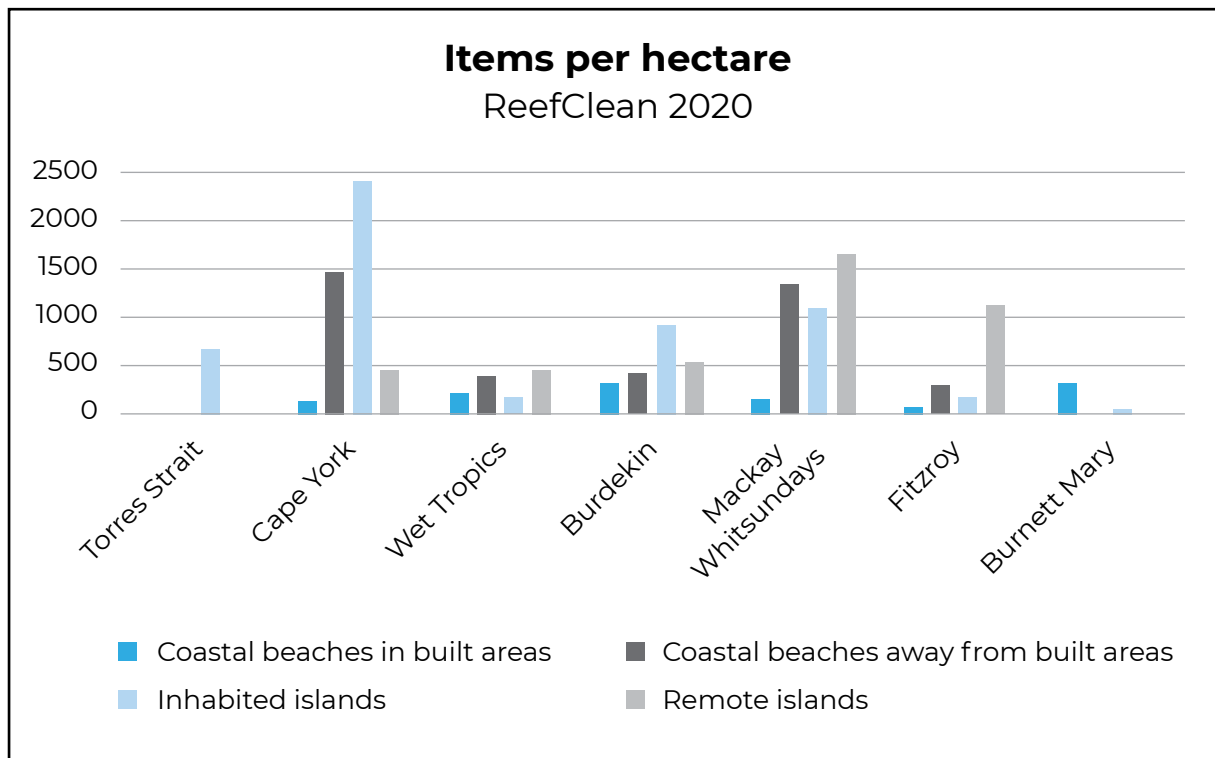
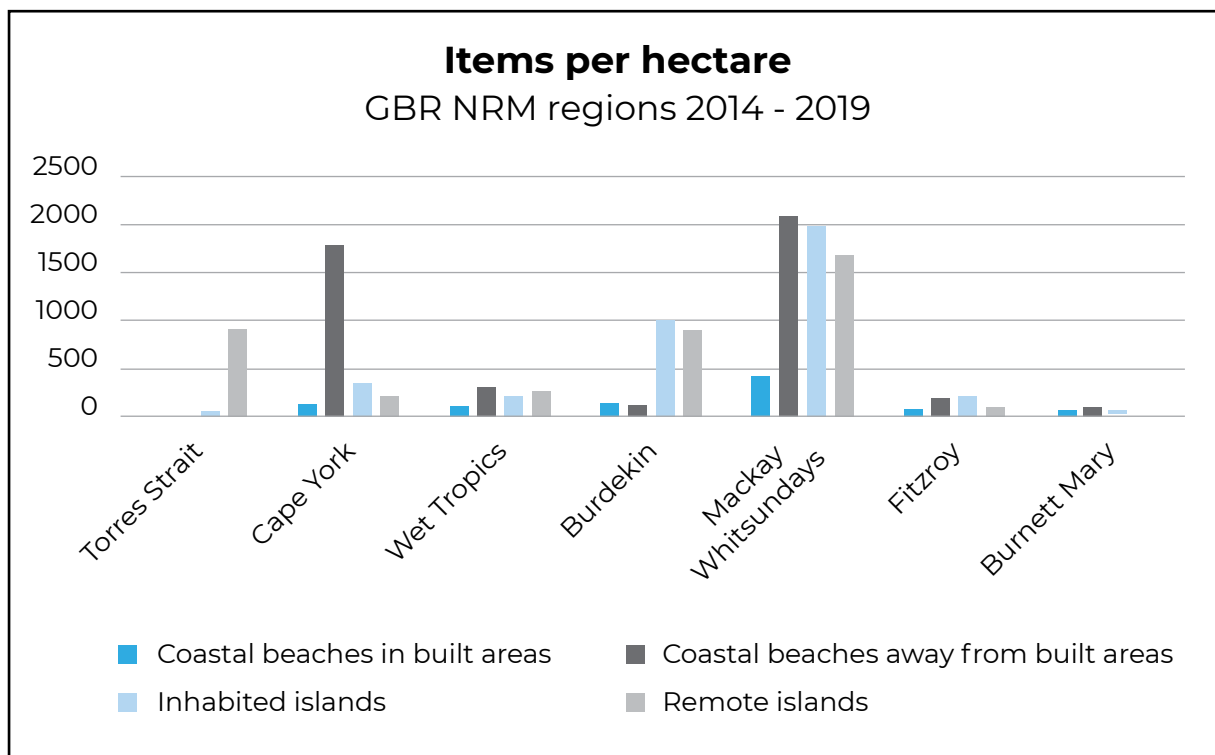


Figure 2: Comparison of marine debris density by NRM and coastal type – Previous 5 years (2015 – 2019)



NRM region data result pages

Each NRM region is given a separate section below, with the first page showing a map of clean-up sites and a graph which will track the abundance of marine debris (items per hectare) across different clean-up location categories. The graph will compare the baseline years of 2014 – 2018 AMDI historic data to each year of the ReefClean project.

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 provides information for developing Source Reduction Plans. The table showing the top 10 items is colour coded to differentiate between items which 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 top 10 data was collected are listed in the adjacent column.

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 behavior 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 data from the previous 5-year period (2015-2019).

Wildlife

Marine debris is a major threat to the health of the Great Barrier Reef and kills 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 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.

Underwater clean-ups

Underwater activity is summarised in the opening text of each NRM page where these clean-ups occurred.

Graphs and tables have not been numbered to simplify layout and space constraints.



Low Isles underwater clean-up coordinated by Reef Check Australia.

NRM region data results



Cape York coastline during the 2020 helicopter survey.

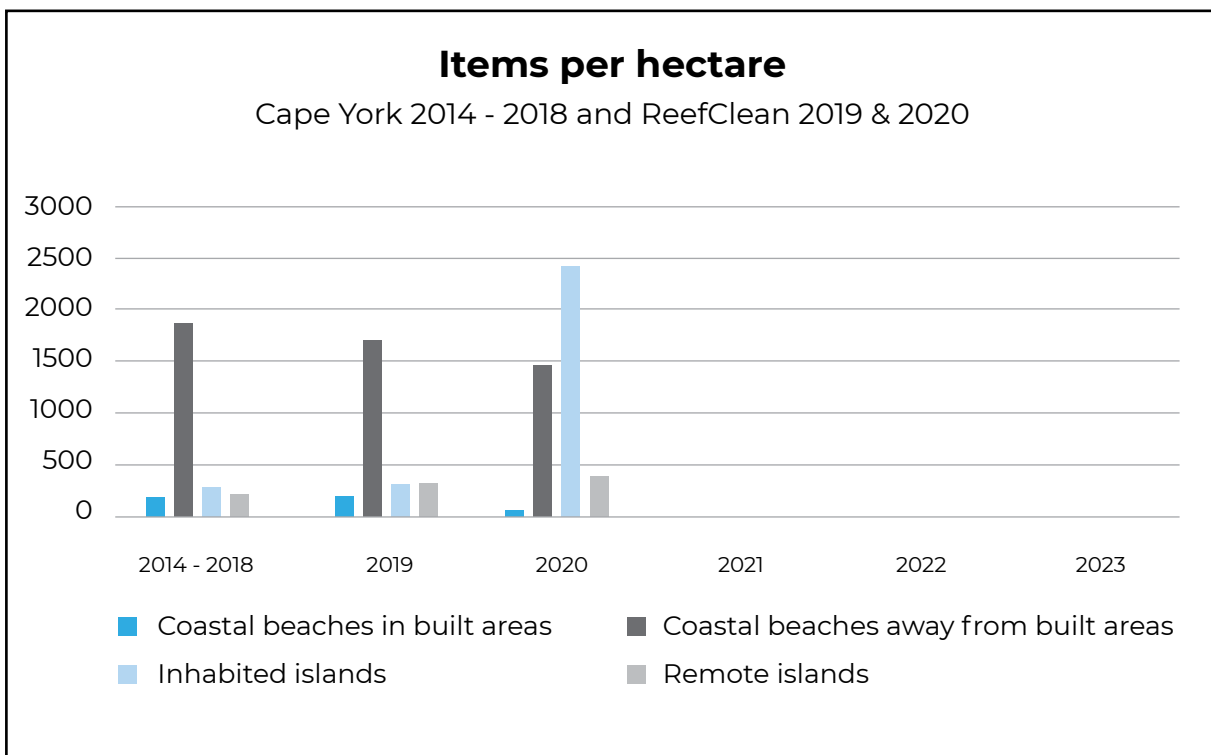
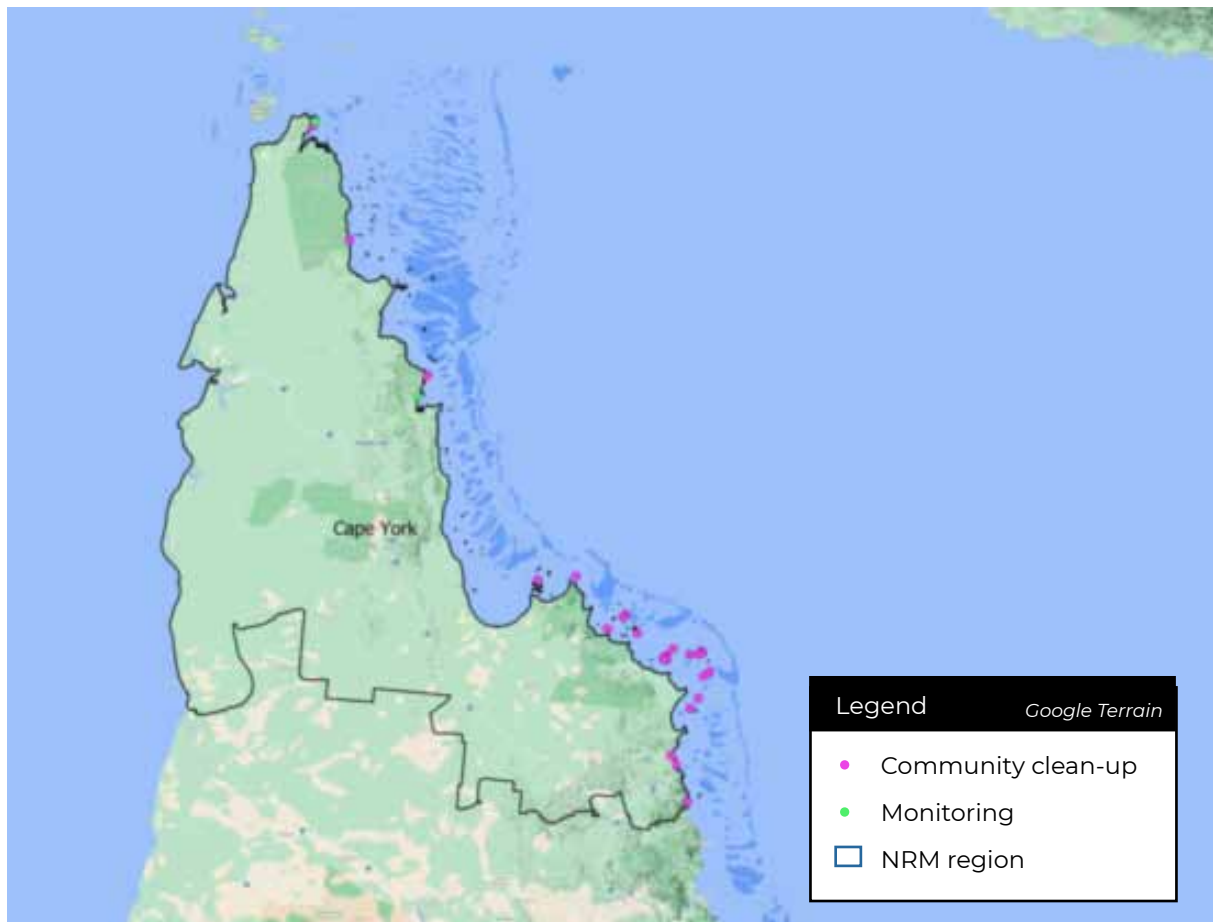
Cape York

Cape York has high densities of debris recorded along its coastline with most of this marine debris originating from offshore. The combined effects of the South Equatorial Current (SEC) and the South Easterly trade winds transport debris originating from other countries, shipping and fishing activities into the region. The SEC flows directly toward the coast in the northern half of the NRM bringing very high levels of debris into the coast. In the wet season (December – March) wind patterns change, and cyclonic weather can amplify debris loads. The items per hectare graph for 2020 shows a spike for inhabited islands. This was due to clean-ups at Lizard Island where the cleaning of small transects on some beaches produced high numbers of items. Six wildlife observations were recorded covering snakes, birds and turtle remains but with no indication of marine debris impact. Sightings of rodents and a gecko on different islands were reported to Queensland Parks and Wildlife Service (QPWS) due to their anomalous presence.



Students from the Northern Peninsula Area State College Bamaga Junior Campus joined the 5 Beaches Loop Clean-up at the very tip of Cape York.

Cape York clean-up locations



Items and sources - Cape York

Coastal beaches in built areas

Clean-up sites / notes	Top-ranking items			
Cooktown North Shore	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	533	29%
	2	Plastic drink bottles (water, juice, milk, soft drink)	332	18%
	3	Lids & tops, pump spray, flow restrictor & similar	138	8%
	4	Rubber footwear & thongs	132	7%
	5	Foam insulation & packaging (whole and remnants)	108	6%
	6	Fishing line in metres (recreation)	103	6%
	7	Plastic film remnants (bits of plastic bag, wrap etc)	86	5%
	8	Bleach & cleaner bottles	46	3%
	9	Rope & net scraps less than 1 metre	35	2%
	10	Plastic packaging food (wrap, packets, containers)	28	2%
			1541	84%
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				

ReefClean 2020 - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
1	1835	591	80%	7%	7%	25%	75%

Previous 5 years (2015 -2019) - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
3	3128	3064	75%	9%	8%	27%	73%

Items and sources - Cape York

Coastal beaches away from built areas

Clean-up sites / notes	Top-ranking items			
Captain Billy's Landing	Rank	Item	Total	%
Cedar Bay	1	Plastic bits & pieces hard & solid	51422	50%
Chilli Beach	2	Lids & tops, pump spray, flow restrictor & similar	18426	18%
Five Beaches Loop	3	Rope & net scraps less than 1 metre	4474	4%
Sixth Beach, Somerset	4	Plastic film remnants (bits of plastic bag, wrap etc)	2879	3%
Walker Bay, Cooktown	5	Fishing line in metres (recreation)	2186	2%
	6	Plastic drink bottles (water, juice, milk, soft drink)	2178	2%
	7	Foam insulation & packaging (whole and remnants)	2060	2%
	8	Rope (estimated length in metres)	1714	2%
	9	Rubber footwear & thongs	1545	2%
	10	Plastic packaging food (wrap, packets, containers)	1436	1%
			88320	86%
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				

ReefClean 2020 - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
6	102811	5450	93%	3%	2%	5%	95%

Previous 5 years (2015 -2019) - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
135	1216648	53550	90%	4%	2%	4%	96%

Items and sources - Cape York

Inhabited islands

Clean-up sites / notes	Top-ranking items			
Coconut Beach, Lizard Island Mangrove Beach, Lizard Island One Tree Coconut Beach, Lizard Island Trawler Beach, Lizard Island	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	2555	47%
	2	Lids & tops, pump spray, flow restrictor & similar	1109	21%
	3	Plastic film remnants (bits of plastic bag, wrap etc)	249	5%
	4	Rubber footwear & thongs	186	3%
	5	Plastic drink bottles (water, juice, milk, soft drink)	181	3%
	6	Rope & net scraps less than 1 metre	167	3%
	7	Plastic packaging food (wrap, packets, containers)	137	3%
	8	Personal care & pharmaceutical packaging	118	2%
	9	Bleach & cleaner bottles	96	2%
	10	Rubber remnants	73	1%
			4871	90%
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				

ReefClean 2020 - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
5	2915	52	77%	10%	9%	21%	79%

Previous 5 years (2015 -2019) - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
24	13807	921	87%	4%	3%	15%	85%

Items and sources - Cape York

Remote and protected islands

Clean-up sites / notes	Top-ranking items			
Combe Island Coquet Island Eagle Isle Ingram Island Low Wooded Island Noble Island East Side. Howick Group North East Beach, Stanley Island Nymph Island, Turtle Group National Park Picnic Beach, Palfrey Island Pipon Island Rocky Islet South Direction Island Turtle Group Reef Island A Turtle Group Reef Island B Turtle Group Reef Island C Turtle Group Reef Island D Turtle Group Reef Island E Turtle Group Reef Island F Two Islands National Park	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	20946	59%
	2	Lids & tops, pump spray, flow restrictor & similar	2621	7%
	3	Plastic drink bottles (water, juice, milk, soft drink)	1971	6%
	4	Rubber footwear & thongs	1695	5%
	5	Rope (estimated length in metres)	1186	3%
	6	Foam insulation & packaging (whole and remnants)	1137	3%
	7	Rope & net scraps less than 1 metre	542	2%
	8	Glass or ceramic broken	505	1%
	9	Rubber remnants	448	1%
	10	Personal care & pharmaceutical packaging	330	1%
				31381
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				

ReefClean 2020 - Remote and protected islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Glass & ceramic	Debris from the land	Debris from the sea
22	35320	2991	85%	6%	4%	4%	96%

Previous 5 years (2015 -2019) - Remote and protected islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Rubber	Debris from the land	Debris from the sea
27	16516	1925	75%	10%	8%	5%	94%

Cape York Photo gallery



1. The Tangaroa Blue crew travelled on Wavelength Outer Reef Cruises for a clean-up at Cedar Bay where over 600kg were removed. 2. Volunteers at the annual 5 Beaches Loop Clean-up. 3. The 9th Annual Chili Beach clean-up with over 3 tonnes of debris removed. 4. South Cape York Catchments at Walker Bay near Cooktown. 5. Hundreds of metres of rope removed from offshore island clean-ups in Cape York. 6. NPARC Apudthama Land and Sea Rangers hosted Tangaroa Blue at the annual 5 Beaches Loop Clean-up.

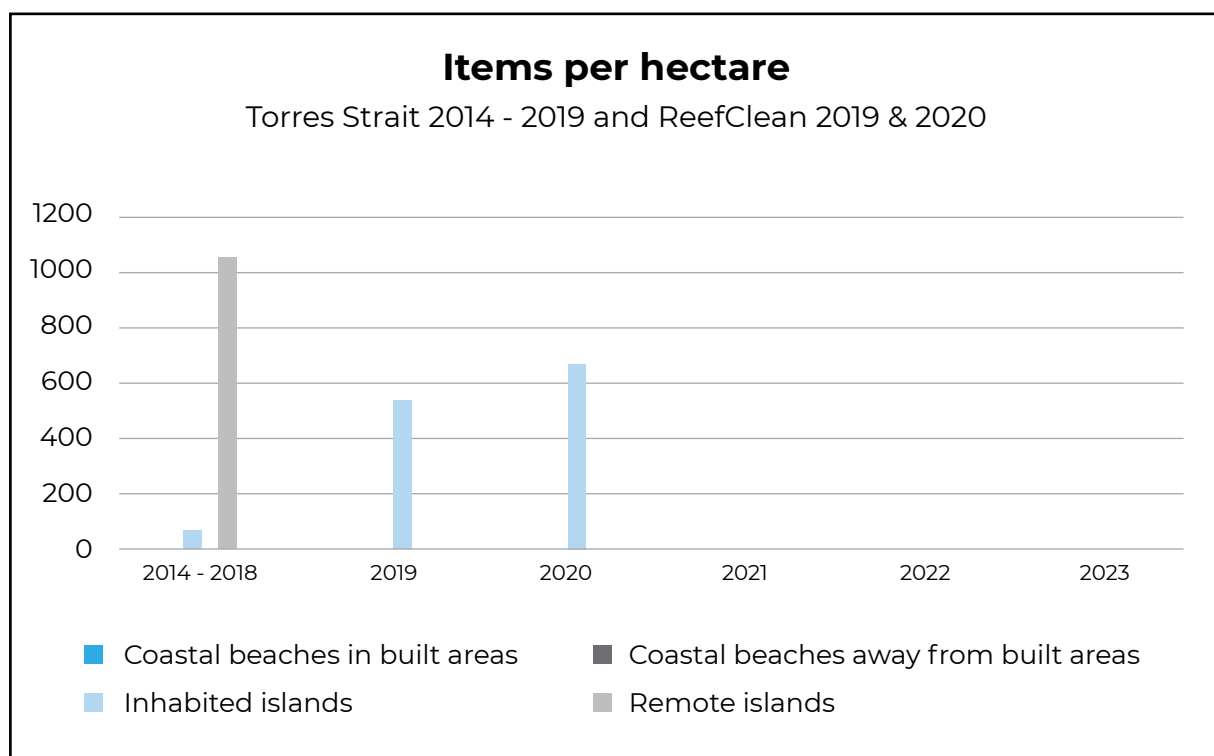
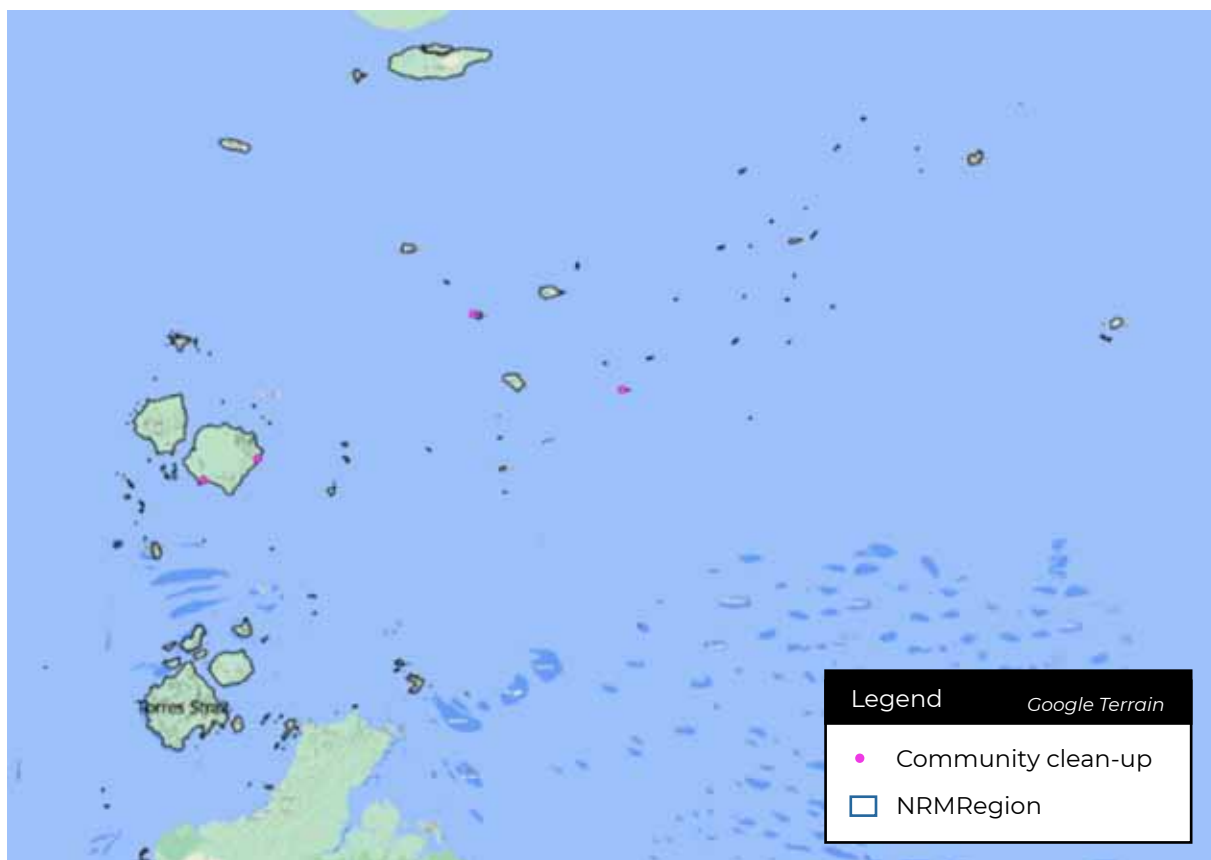
Torres Strait

The Torres Strait is a broad, shallow region of continental shelf between the northern tip of Cape York and Papua New Guinea with numerous islands supporting small populations and many smaller uninhabited islands. South East trade winds and North Westerly monsoonal winds play seasonal roles in marine debris transportation. Shipping and fishing are likely sources of wind driven debris from the Coral and Arafura Seas and these may penetrate the region seasonally. Approximately half of the debris recorded appears to be foreign in origin according to the historic data. No observations indicating wildlife impacts were reported from the 2020 activities.



Poruma Island community participating in the 2020 GBR Clean-up event.

Torres Strait clean-up locations



Items and sources - Torres Strait

Inhabited islands

Clean-up sites / notes	Top-ranking items			
TS, Iama Is, Front Beach	Rank	Item	Total	%
TS, Moa Is, Arkai Beach	1	Plastic bits & pieces hard & solid	2674	28%
TS, Moa Is, Florence	2	Lids & tops, pump spray, flow restrictor & similar	2203	23%
Buchanan, St Pauls Community	3	Glass or ceramic broken	635	7%
TS, Poruma Is	4	Plastic film remnants (bits of plastic bag, wrap etc)	470	5%
	5	Plastic drink bottles (water, juice, milk, soft drink)	400	4%
	6	Foam insulation & packaging (whole and remnants)	363	4%
	7	Aluminium cans	322	3%
	8	Plastic bags supermarket, garbage, dog poo, ice	240	3%
	9	Rubber remnants	193	2%
	10	Rubber footwear & thongs	192	2%
			7692	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				

ReefClean 2020 - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
4	9391	375	73%	9%	6%	31%	69%

Previous 5 years (2015 -2019) - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
10	4232	446	64%	13%	11%	59%	41%

Torres Strait Photo gallery



1. Students on Moa Island assisting with a local clean-up.
2. TSRA staff assisting with data collection on Moa Island.
3. Thank you to the students and staff on Iama Island for hosting us for a clean-up.
4. Tangaroa Blue working with the Poruma Island community during the GBR Clean-up.
5. AMDI data collection with the students on Iama Island.
6. The team with their haul during the Iama Island clean-up event.

Wet Tropics

The Wet Tropics has a medium density of debris compared to the other regions with the greater proportion of debris coming from offshore. The southern diversion of the SEC at this point has become the East Australian Current (EAC) flowing parallel to the coast beyond the outer reef.

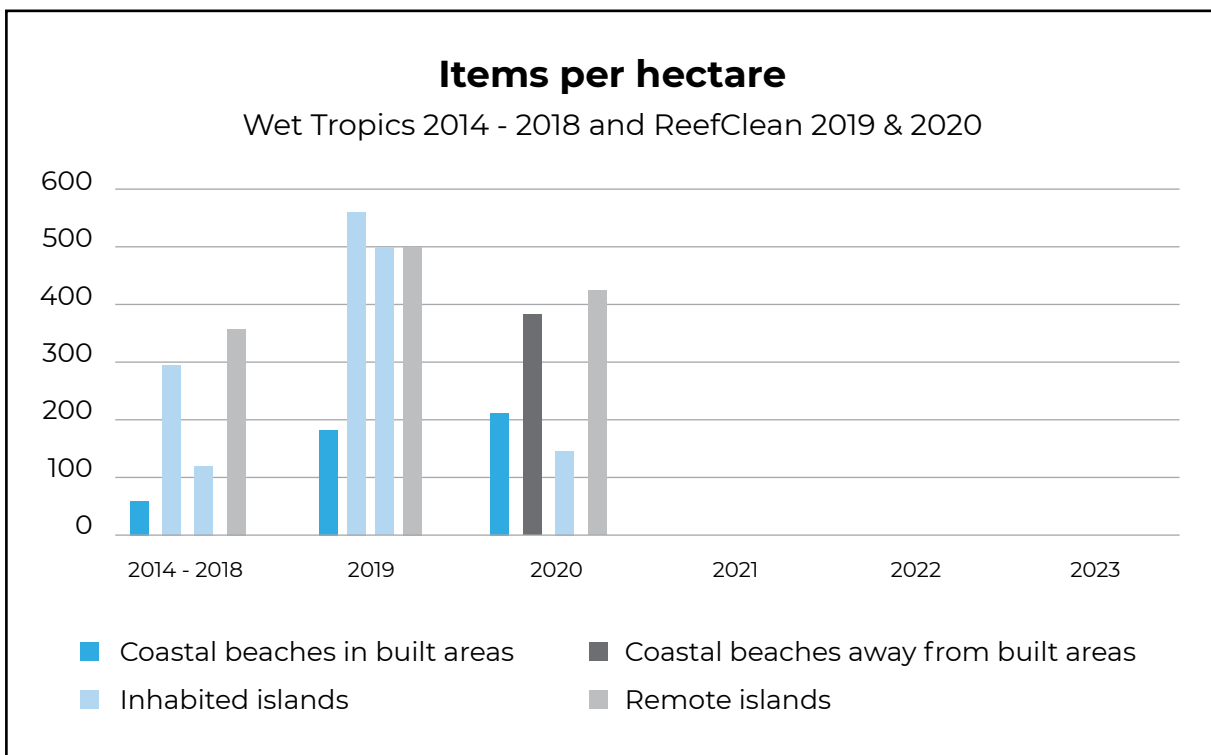
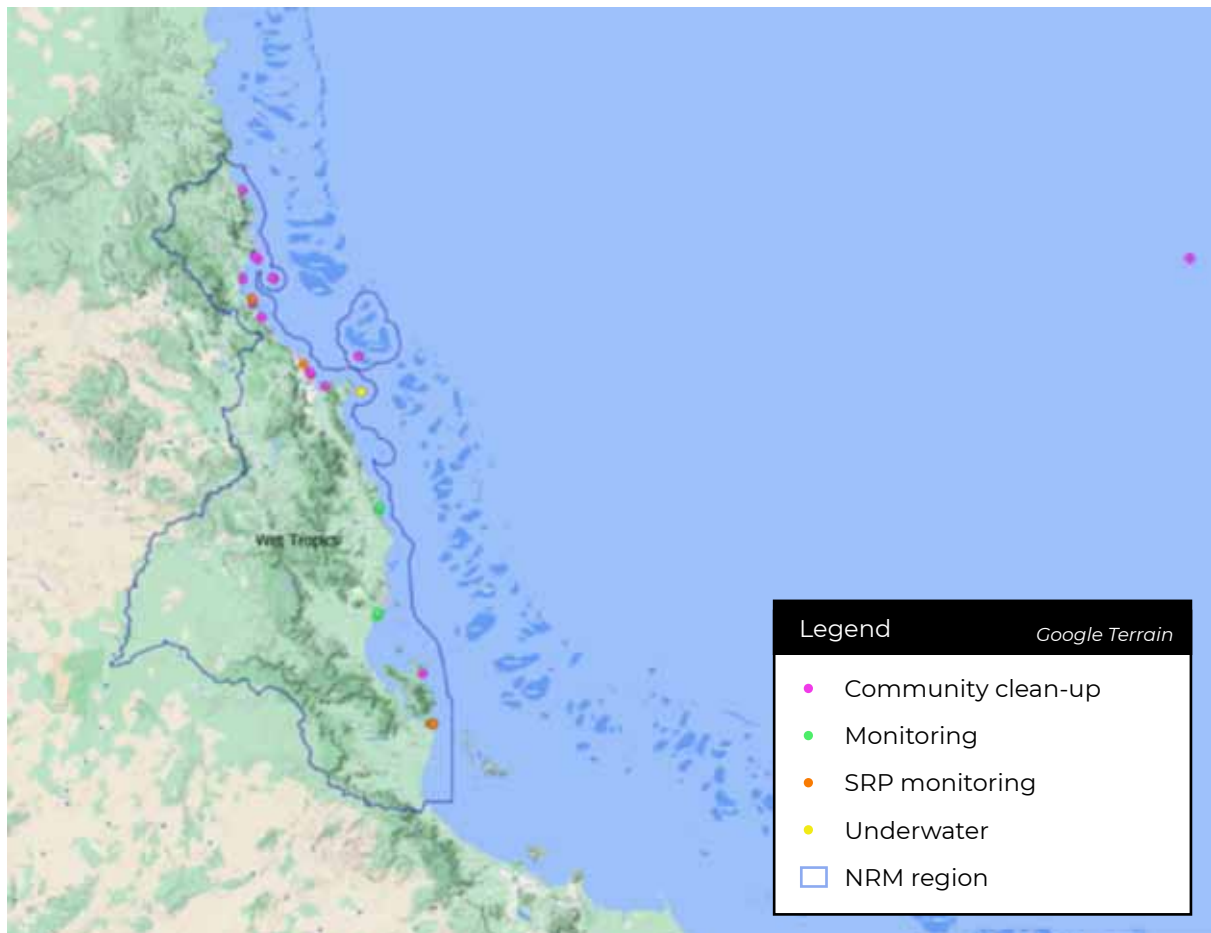
The South East Trade winds transport offshore sourced debris into the region. Occasional cyclonic activity can amplify debris loads. Local inputs of debris appear to be greater, around half, in larger centres and around one third for populated islands. The items per hectare graph shows 2020 being similar to the baseline years in contrast to 2019. Two underwater clean-ups were held at Fitzroy Island during 2020 with fishing line, plastic fragments and glass beer stubbies being the top three items out of a total 104 items. One underwater clean-up was held at Low Isles where 5 recreation and 1 sanitary, paper, rope and plastic fragment items made up a total of 9 items. During the 2020 activities birds and fish were recorded with no signs of plastic impact.

A dead crocodile was found at Hull River Estuary and appeared to have become entangled in a crab pot. The find was reported to QPWS.



Great Barrie Reef Clean-up volunteers on beautiful Hinchinbrook Island.

Wet Tropics clean-up locations



Items and sources - Wet Tropics

Coastal beaches in built areas

Clean-up sites / notes	Top-ranking items			
Four Mile Beach, Middle Section, Port Douglas Four Mile Beach, North End, Port Douglas Holloways Beach Machans Beach Giangurra Beach, Yarrabah	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	791	20%
	2	Cigarette butts & filters	287	7%
	3	Plastic film remnants (bits of plastic bag, wrap etc)	284	7%
	4	Plastic packaging food (wrap, packets, containers)	252	6%
	5	Glass or ceramic broken	216	5%
	6	Lids & tops, pump spray, flow restrictor & similar	203	5%
	7	Miscellaneous paper, labels & tickets	172	4%
	8	Foam insulation & packaging (whole and remnants)	123	3%
	9	Metal bottle caps, lids & pull tabs	117	3%
	10	Straws, confection sticks, cups, plates & cutlery	96	2%
			2541	63%
	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				

ReefClean 2020 - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Metal	Paper & cardboard	Debris from the land	Debris from the sea
5	4030	138	66%	9%	8%	70%	30%

Previous 5 years (2015 -2019) - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
279	143427	49097	73%	7%	6%	55%	45%

Items and sources - Wet Tropics

Coastal beaches away from built areas

Clean-up sites / notes	Top-ranking items			
Yule Point	Rank	Item	Total	%
Cape Kimberley	1	Plastic bits & pieces hard & solid	12018	48%
Degarra Coast	2	Lids & tops, pump spray, flow restrictor & similar	4887	19%
Rocky Point	3	Foam insulation & packaging (whole and remnants)	1573	6%
	4	Straws, confection sticks, cups, plates & cutlery	585	2%
	5	Plastic packaging food (wrap, packets, containers)	548	2%
	6	Plastic film remnants (bits of plastic bag, wrap etc)	497	2%
	7	Plastic drink bottles (water, juice, milk, soft drink)	444	2%
	8	Rubber footwear & thongs	254	1%
	9	Fishing line in metres (Recreation)	206	1%
	10	Rope & net scraps less than 1 metre	167	1%
			21179	84%
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				

ReefClean 2020 - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Rubber	Debris from the land	Debris from the sea
7	25244	1057	86%	7%	2%	6%	94%

Previous 5 years (2015 -2019) - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
87	187201	8424	77%	11%	3%	9%	91%

Items and sources - Wet Tropics Inhabited islands

Clean-up sites / notes	Top-ranking items			
Green Island, Cairns Low Isles Snapper Island, Queensland Welcome Bay, Fitzroy Island	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	1447	35%
	2	Foam insulation & packaging (whole and remnants)	370	9%
	3	Glass or ceramic broken	291	7%
	4	Plastic film remnants (bits of plastic bag, wrap etc)	263	6%
	5	Lids & tops, pump spray, flow restrictor & similar	252	6%
	6	Plastic packaging food (wrap, packets, containers)	162	4%
	7	Plastic drink bottles (water, juice, milk, soft drink)	124	3%
	8	Rubber footwear & thongs	82	2%
	9	Rubber remnants	65	2%
	10	Foam cups, food packs & trays	64	2%
			3120	76%
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				

ReefClean 2020 - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
6	4120	489	68%	11%	9%	31%	69%

Previous 5 years (2015 -2019) - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
49	28609	2314	41%	38%	8%	30%	70%

Items and sources - Wet Tropics

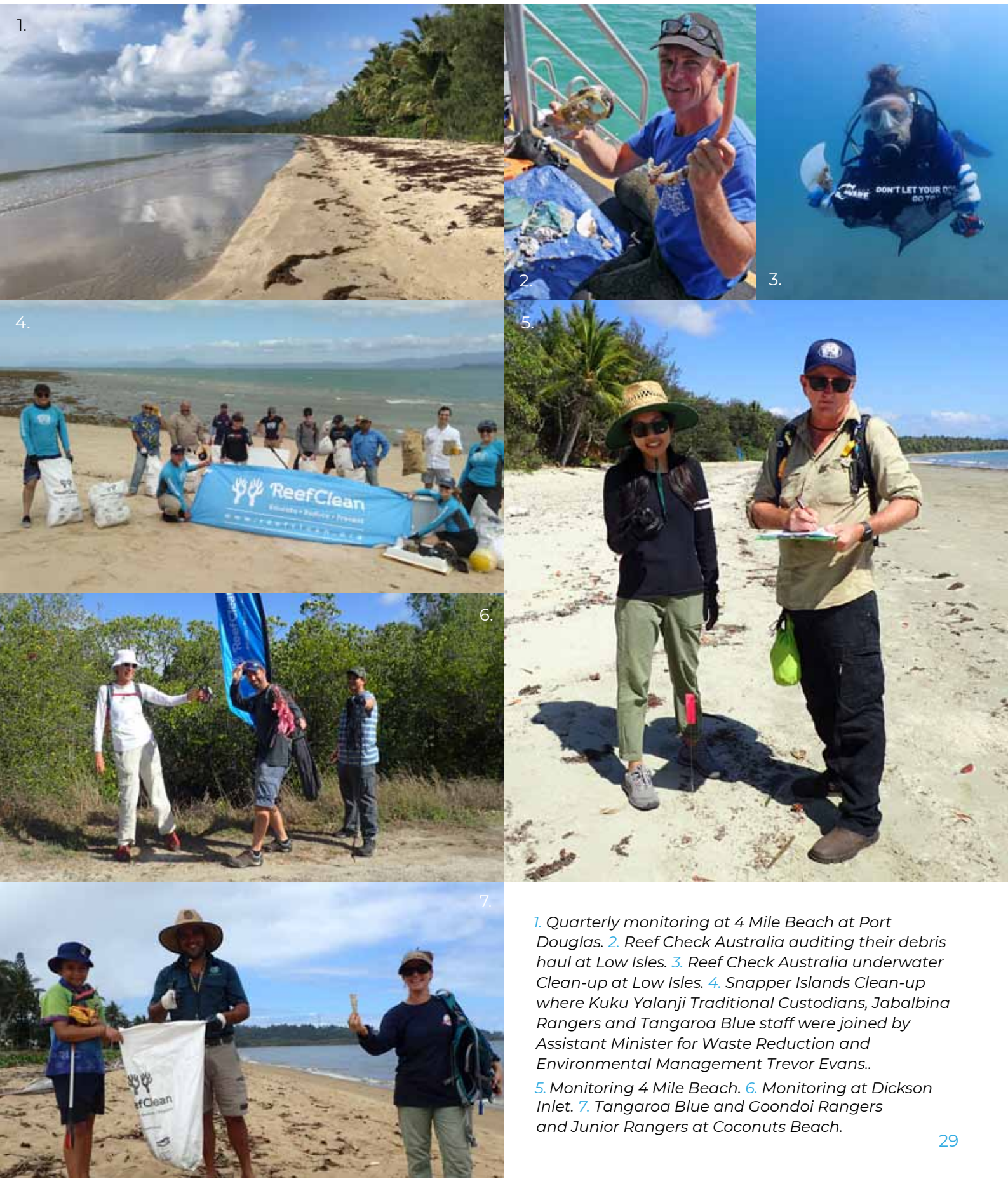
Uninhabited Islands

Clean-up sites / notes	Top-ranking items			
Ramsay Bay, Hinchinbrook Island Willis Island Woody Island, Queensland	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	7036	55%
	2	Lids & tops, pump spray, flow restrictor & similar	1490	12%
	3	Plastic film remnants (bits of plastic bag, wrap etc)	923	7%
	4	Rope & net scraps less than 1 metre	455	4%
	5	Rope (estimated length in metres)	335	3%
	6	Foam insulation & packaging (whole and remnants)	293	2%
	7	Plastic drink bottles (water, juice, milk, soft drink)	292	2%
	8	Rubber footwear & thongs	289	2%
	9	Plastic bags supermarket, garbage, dog poo, ice	155	1%
	10	Plastic packaging food (wrap, packets, containers)	153	1%
			11421	89%
	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				

ReefClean 2020 - Uninhabited Islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
5	12864	2373	91%	3%	3%	4%	96%

Previous 5 years (2015 -2019) - Uninhabited Islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
7	11097	1160	85%	6%	4%	8%	92%

Wet Tropics Photo gallery



1. Quarterly monitoring at 4 Mile Beach at Port Douglas.
2. Reef Check Australia auditing their debris haul at Low Isles.
3. Reef Check Australia underwater Clean-up at Low Isles.
4. Snapper Islands Clean-up where Kuku Yalanji Traditional Custodians, Jabalbina Rangers and Tangaroa Blue staff were joined by Assistant Minister for Waste Reduction and Environmental Management Trevor Evans..
5. Monitoring 4 Mile Beach.
6. Monitoring at Dickson Inlet.
7. Tangaroa Blue and Goondoi Rangers and Junior Rangers at Coconuts Beach.

Burdekin

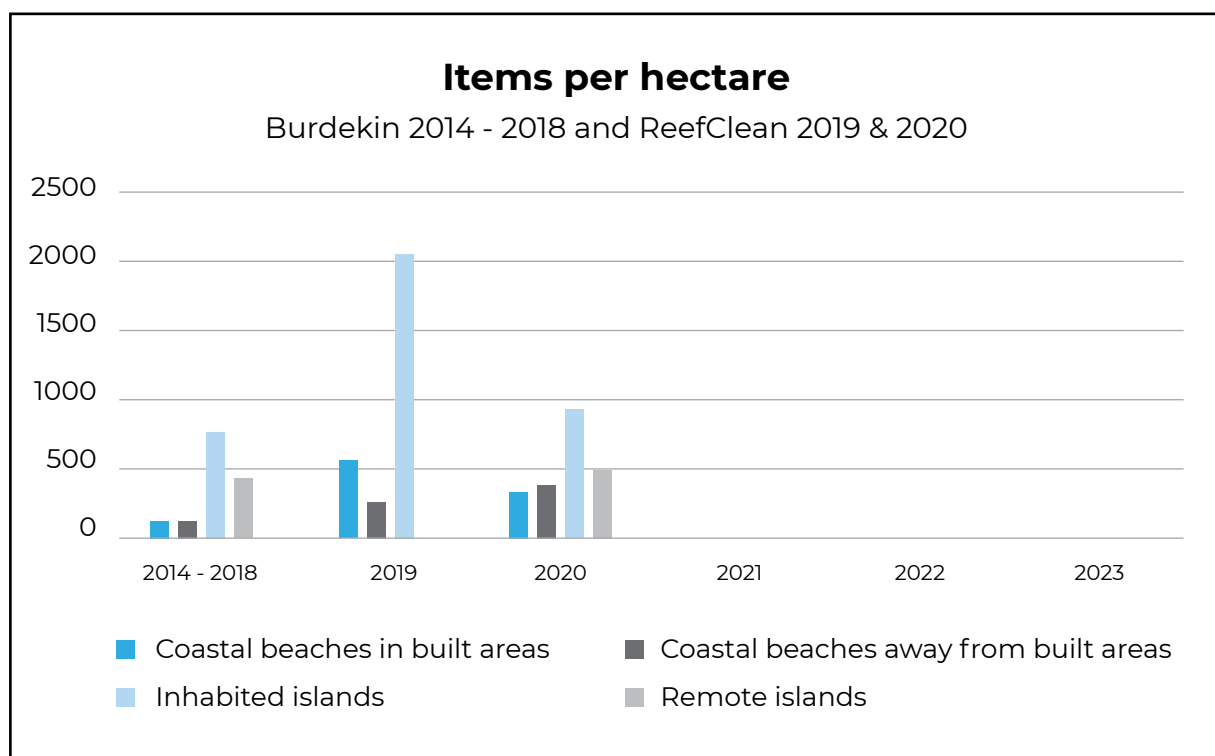
Burdekin has a higher density of debris compared to some of the other regions. This is due to the high levels of debris recorded from inhabited islands. The greater proportion of debris for these islands originates from offshore. The EAC flows parallel to the coast beyond the outer reef. The South East Trade winds now blow more parallel to the coast, potentially transporting debris from sources within the southern section of the reef in addition to current borne debris from beyond the outer reef. Occasional cyclonic activity can amplify debris loads. The items per hectare graph shows debris density across the coastal types being similar to the 2014-2018 baseline years in contrast to 2019.

Four underwater clean-ups were held on Magnetic Island during 2020 with glass beer stubbies, broken glass and fishing line being the top three items out of a total 89 items. One wildlife observation was recorded from Townsville for a pufferfish and an ibis with no plastic debris impact evident.



Volunteers at the Orpheus Island Clean-up event were hosted by the James Cook University Research Station.

Burdekin clean-up locations



Items and sources - Burdekin

Coastal beaches in built areas

Clean-up sites / notes	Top-ranking items			
Rowes Bay Strand Park, Townsville Alva Beach Bushland Beach, Townsville Kissing Point, Townsville	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	2605	33%
	2	Plastic film remnants (bits of plastic bag, wrap etc)	1109	14%
	3	Lids & tops, pump spray, flow restrictor & similar	379	5%
	4	Plastic packaging food (wrap, packets, containers)	343	4%
	5	Miscellaneous paper, labels & tickets	295	4%
	6	Glass beer stubbies & pre-mixed alcohol bottles	247	3%
	7	Cigarette butts & filters	230	3%
	8	Plastic film remnants (bits of plastic bag, wrap etc)	222	3%
	9	Aluminium cans	212	3%
	10	Cigarette butts & filters	187	2%
			5829	74%
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				

ReefClean 2020 - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
7	7881	349	76%	7%	6%	80%	20%

Previous 5 years (2015 -2019) - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Paper & cardboard	Debris from the land	Debris from the sea
94	32361	2392	66%	12%	6%	58%	42%

Items and sources - Burdekin

Coastal beaches away from built areas

Clean-up sites / notes	Top-ranking items			
Shelly Beach, Pallarenda	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	171	22%
	2	Glass wine, spirit and similar bottles	97	13%
	3	Fishing line in metres (recreation)	78	10%
	4	Glass or ceramic broken	73	9%
	5	Metal scrap & remnants	52	7%
	6	Lids & tops, pump spray, flow restrictor & similar	40	5%
	7	Rubber footwear & thongs	27	3%
	8	Remnants burnt plastic	24	3%
	9	Glass jars & sauce bottles	23	3%
	10	Foam insulation & packaging (whole and remnants)	22	3%
			607	78%
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				

ReefClean 2020 - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
1	776	108.5	56%	25%	7%	30%	70%

Previous 5 years (2015 -2019) - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
10	5040	639	61%	18%	13%	41%	59%

Items and sources - Burdekin

Inhabited islands

Clean-up sites / notes	Top-ranking items			
Magnetic Island Alma Bay Nelly Bay Beach Orpheus Island Big Rock Bay, Fig Tree Beach North Beach, Picnic Bay South Beach	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	15621	60%
	2	Lids & tops, pump spray, flow restrictor & similar	3525	14%
	3	Rope & net scraps less than 1 metre	736	3%
	4	Plastic film remnants (bits of plastic bag, wrap etc)	553	2%
	5	Plastic packaging food (wrap, packets, containers)	499	2%
	6	Glass or ceramic broken	451	2%
	7	Straws, confection sticks, cups, plates & cutlery	396	2%
	8	Plastic drink bottles (water, juice, milk, soft drink)	352	1%
	9	Foam insulation & packaging (whole and remnants)	338	1%
	10	Remnants burnt plastic	281	1%
			22752	87%
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				

ReefClean 2020 - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
9	26038	741	92%	2%	2%	17%	83%

Previous 5 years (2015 -2019) - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Foam	Debris from the land	Debris from the sea
61	197936	6554	93%	2%	2%	18%	82%

Items and sources - Burdekin

Remote and protected islands

Clean-up sites / notes	Top-ranking items			
<p>Fantome Island, Northern End</p> <p>North West Beach, Pelorus Island</p> <p>West Beach, Pelorus Island</p> <p>The high “Debris from the land” figure in the 2020 table below was due to the recovery of 939 pieces of broken glass during the first time trip to the northern end of Fantome Island.</p>	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	1030	26%
	2	Glass or ceramic broken	939	24%
	3	Metal scrap & remnants	272	7%
	4	Foil wrappers, packets, bladders & alfoil	211	5%
	5	Aluminium cans	189	5%
	6	Lids & tops, pump spray, flow restrictor & similar	119	3%
	7	Straws, confection sticks, cups, plates & cutlery	88	2%
	8	Plastic packaging food (wrap, packets, containers)	85	2%
	9	Plastic film remnants (bits of plastic bag, wrap etc)	78	2%
	10	Remnants burnt plastic	70	2%
				3081
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				

ReefClean 2020 - Remote and protected islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
3	3918	229	45%	27%	21%	47%	53%

Previous 5 years (2015 -2019) - Remote and protected islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
4	5939	757	90%	3%	2%	4%	96%

Burdekin Photo gallery



1. 2. and 5. Tangaroa Blue volunteers out on Orpheus Island removed 682kg in September 2020. 3. Tangaroa Blue volunteers monitoring at Townsville. 4. Reef Check Australia volunteers helping out for an underwater and island clean-up at Alma Bay on Magnetic Island. 6. Source Reduction monitoring at Lucinda for the Look After Your Tackle campaign.

Mackay Whitsundays

Mackay Whitsundays has the highest density of debris for coastal beaches away from built areas, and islands compared to the other regions apart from the remote beaches of Cape York. The greater proportion of debris originates from offshore. The EAC flows parallel to the coast but at an increasing distance offshore and beyond the outer reef.

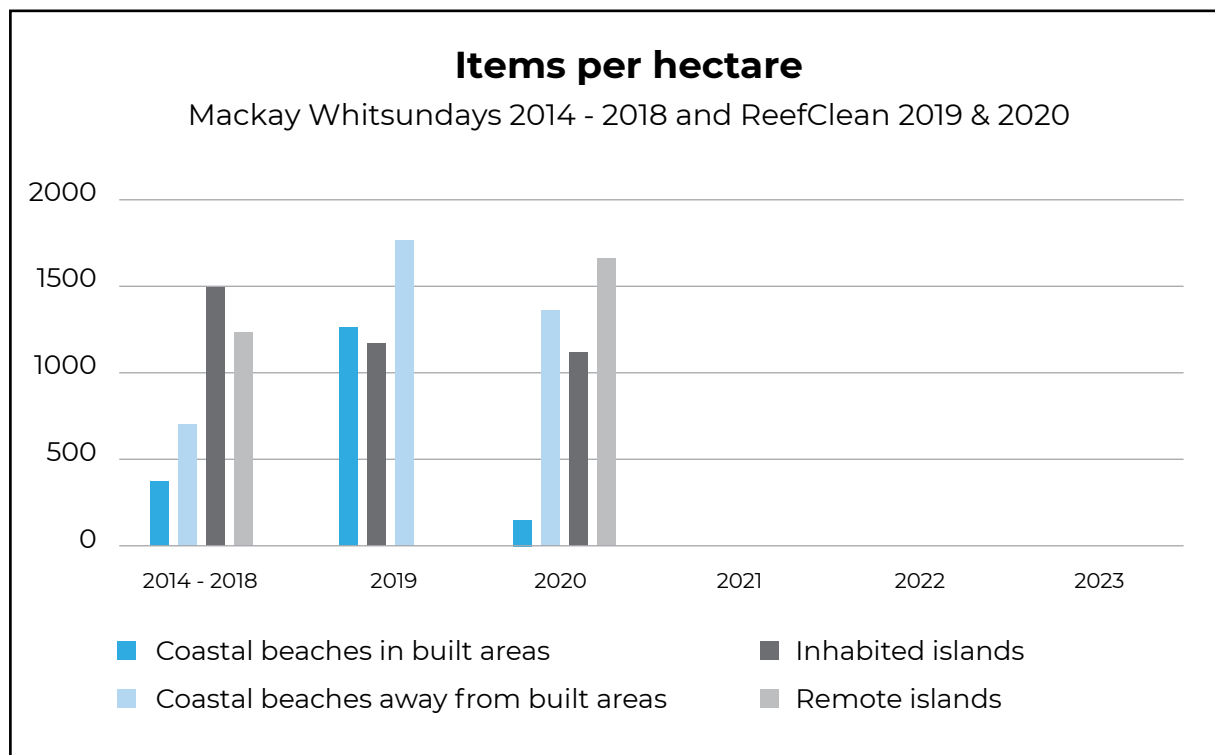
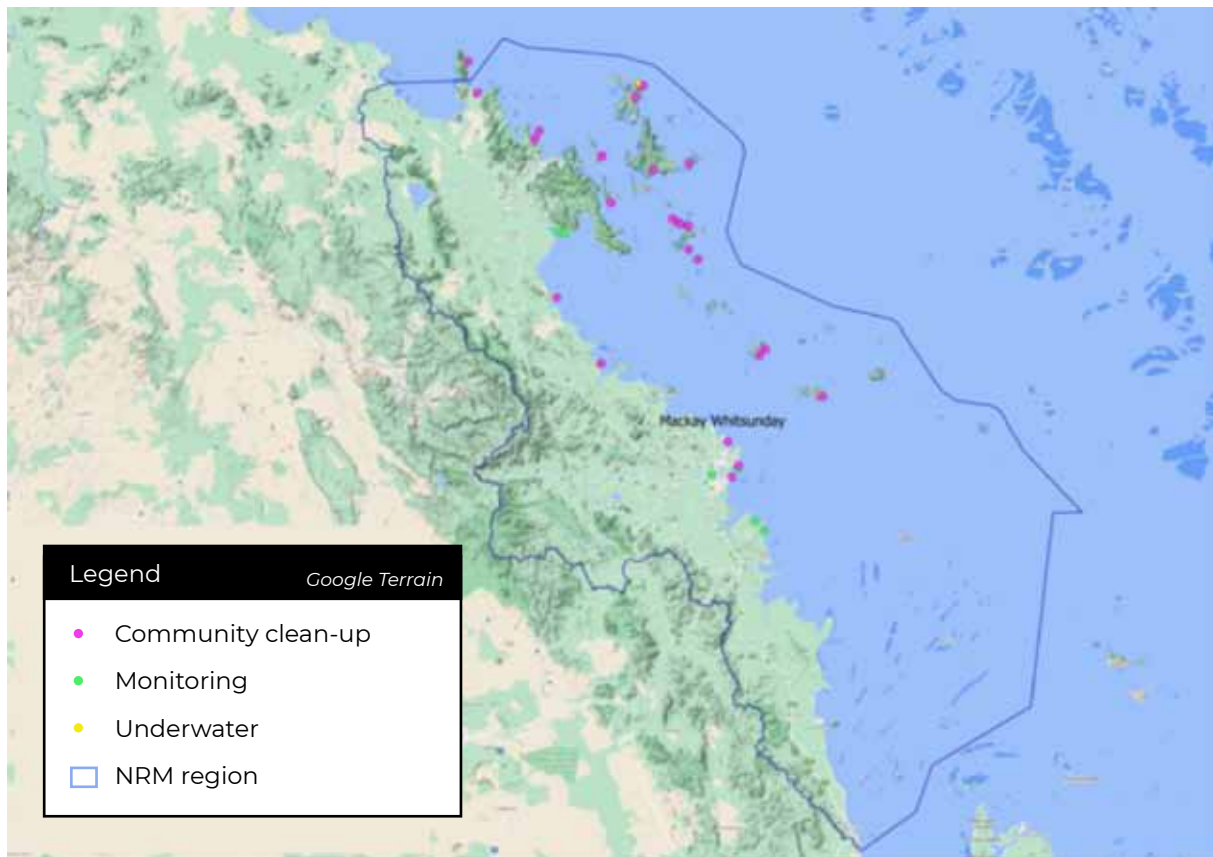
The Southeast Trade winds now blow more or less parallel to the coast and slightly into it, potentially transporting debris from sources within the southern section of the reef and from the EAC as it veers toward the coast to the south at the southern extent of the reef. Occasional cyclonic activity can amplify debris loads. The high abundance of debris remains consistent for coastal locations away from populated areas, populated islands and unpopulated islands.

Two underwater clean-ups were conducted at Hook Island with just the one item of clothing recorded. There were no wildlife observations recorded.



Volunteers at the GBR Clean-up event at Harbour Beach Mackay, October 2020.

Mackay Whitsundays clean-up locations



Items and sources - Mackay Whitsundays

Coastal beaches in built areas

Clean-up sites / notes	Top-ranking items			
Blacks Beach Dingo Beach Harbour Beach, Mackay Midgeton Beach St Helens Beach Town Beach, Mackay	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	1422	35%
	2	Toys, party poppers, ribbons, clips & similar	360	9%
	3	Lids & tops, pump spray, flow restrictor & similar	257	6%
	4	Plastic packaging food (wrap, packets, containers)	255	6%
	5	Plastic film remnants (bits of plastic bag, wrap etc)	249	6%
	6	Miscellaneous paper, labels & tickets	224	6%
	7	Fishing line in metres (recreation)	130	3%
	8	Foam cups, food packs & trays	109	3%
	9	Paper & cardboard packaging	83	2%
	10	Rope & net scraps less than 1 metre	82	2%
			3171	78%
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				

ReefClean 2020 - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Paper & cardboard	Foam	Debris from the land	Debris from the sea
8	4047	169	79%	8%	5%	41%	59%

Previous 5 years (2015 -2019) - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
156	102792	5235	77%	6%	5%	58%	42%

Items and sources - Mackay Whitsundays

Coastal beaches away from built areas

Clean-up sites / notes	Top-ranking items			
Grimston Point East Grimstone Point Eastern Side, Southern section	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	2415	50%
	2	Lids & tops, pump spray, flow restrictor & similar	1240	25%
	3	Foam insulation & packaging (whole and remnants)	151	3%
	4	Plastic drink bottles (water, juice, milk, soft drink)	102	2%
	5	Rope & net scraps less than 1 metre	63	1%
	6	Plastic containers non-food (oil, sealant, chemical)	52	1%
	7	Plastic film remnants (bits of plastic bag, wrap etc)	52	1%
	8	Plastic packaging food (wrap, packets, containers)	51	1%
	9	Bleach & cleaner bottles	49	1%
	10	Rope (estimated length in metres)	48	1%
			4223	87%
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				

ReefClean 2020 - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Glass & ceramic	Debris from the land	Debris from the sea
2	4873	185	91%	3%	2%	5%	95%

Previous 5 years (2015 -2019) - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Rubber	Debris from the land	Debris from the sea
29	147046	9849	90%	2%	2%	4%	96%

Items and sources - Mackay Whitsundays

Inhabited islands

Clean-up sites / notes	Top-ranking items			
Blue Pearl Bay, Hayman Island Luncheon Bay, Hook Island North Turtle Bay, South Molle Island Saba Bay, Hook Island South East Bay, Long Island Southern Tip, Whitsunday Island Turtle Bay, South Molle Island	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	19418	52%
	2	Lids & tops, pump spray, flow restrictor & similar	5876	16%
	3	Plastic film remnants (bits of plastic bag, wrap etc)	4174	11%
	4	Rope & net scraps less than 1 metre	815	2%
	5	Plastic drink bottles (water, juice, milk, soft drink)	630	2%
	6	Foam insulation & packaging (whole and remnants)	515	1%
	7	Rubber footwear & thongs	442	1%
	8	Bleach & cleaner bottles	426	1%
	9	Plastic packaging food (wrap, packets, containers)	346	1%
	10	Rope (estimated length in metres)	343	1%
			32985	89%
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				

ReefClean 2020 - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Rubber	Debris from the land	Debris from the sea
18	37195	1284	95%	2%	1%	17%	83%

Previous 5 years (2015 -2019) - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items re-removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
88	429026	16071	94%	2%	2%	13%	87%

Items and sources - Mackay Whitsundays

Remote and protected islands

Clean-up sites / notes	Top-ranking items			
Gloucester Island, Eastern Side South Bay, Thomas Island White Bay, Haselwood Island Keyser Island	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	6044	54%
	2	Lids & tops, pump spray, flow restrictor & similar	1509	13%
	3	Rubber footwear & thongs	545	5%
	4	Plastic drink bottles (water, juice, milk, soft drink)	515	5%
	5	Foam sponge sheeting (mattress & similar)	425	4%
	6	Rope (estimated length in metres)	281	2%
	7	Personal care & pharmaceutical packaging	206	2%
	8	Bleach & cleaner bottles	156	1%
	9	Foam insulation & packaging (whole and remnants)	156	1%
	10	Rope & net scraps less than 1 metre	140	1%
				9977
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				

ReefClean 2020 - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
5	11282	489	87%	6%	5%	2%	98%

Previous 5 years (2015 -2019) - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Rubber	Foam	Debris from the land	Debris from the sea
55	216628	9707	91%	3%	3%	3%	97%

Mackay Whitsundays Photo gallery



1. 2. and 5. Volunteers at the Great Barrier Reef Clean-up at Harbour Beach, Mackay were Welcomed on Country by Yuwibara Elder George Tonga. 3. Eco Barge crew giving a hand at South Molle Island. 4. Turtle track at Harbour Beach, Mackay in December 2020. 6. Eco Barge crew on another clean-up mission in the Whitsunday Islands. 7. Wilson Beach swimming enclosure continuing to break apart with plastic pieces recorded during each 2020 monitoring event by ReefClean volunteers.

Fitzroy

Fitzroy has a lower density of debris compared to the other regions with islands showing a higher density than coastal locations. More of the debris load appears to originate from offshore. The EAC veers toward the coast at this point.

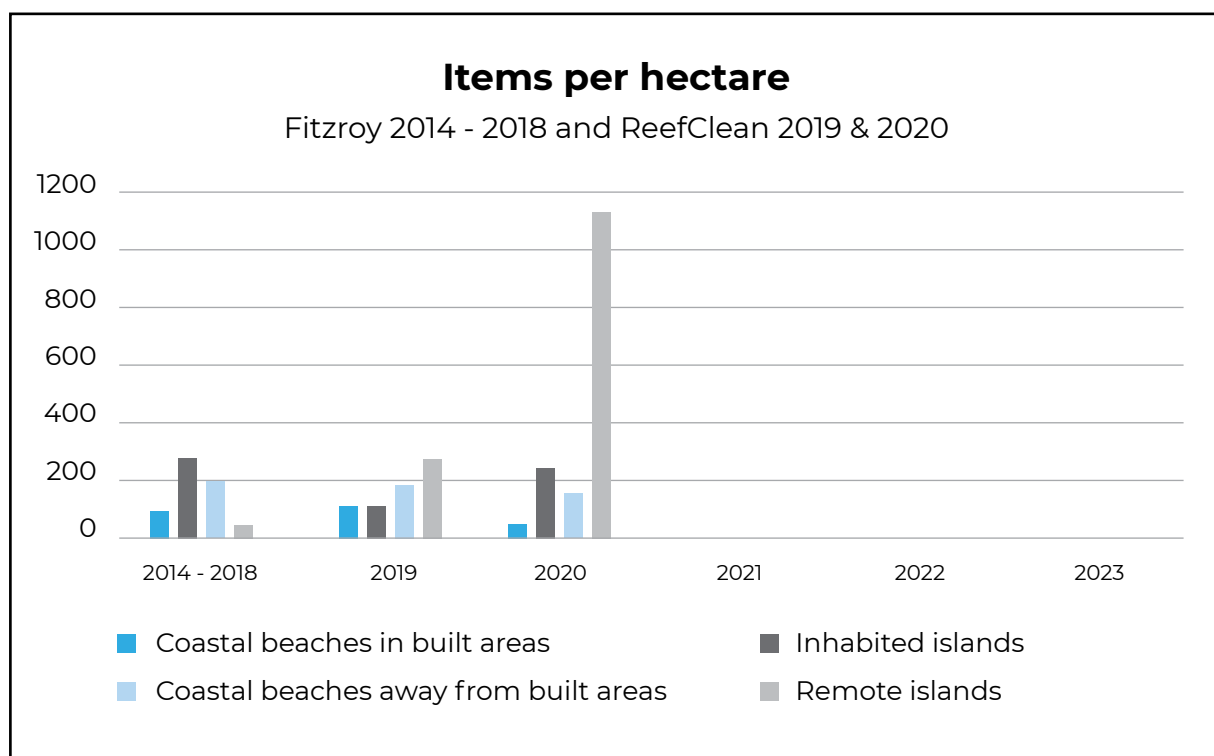
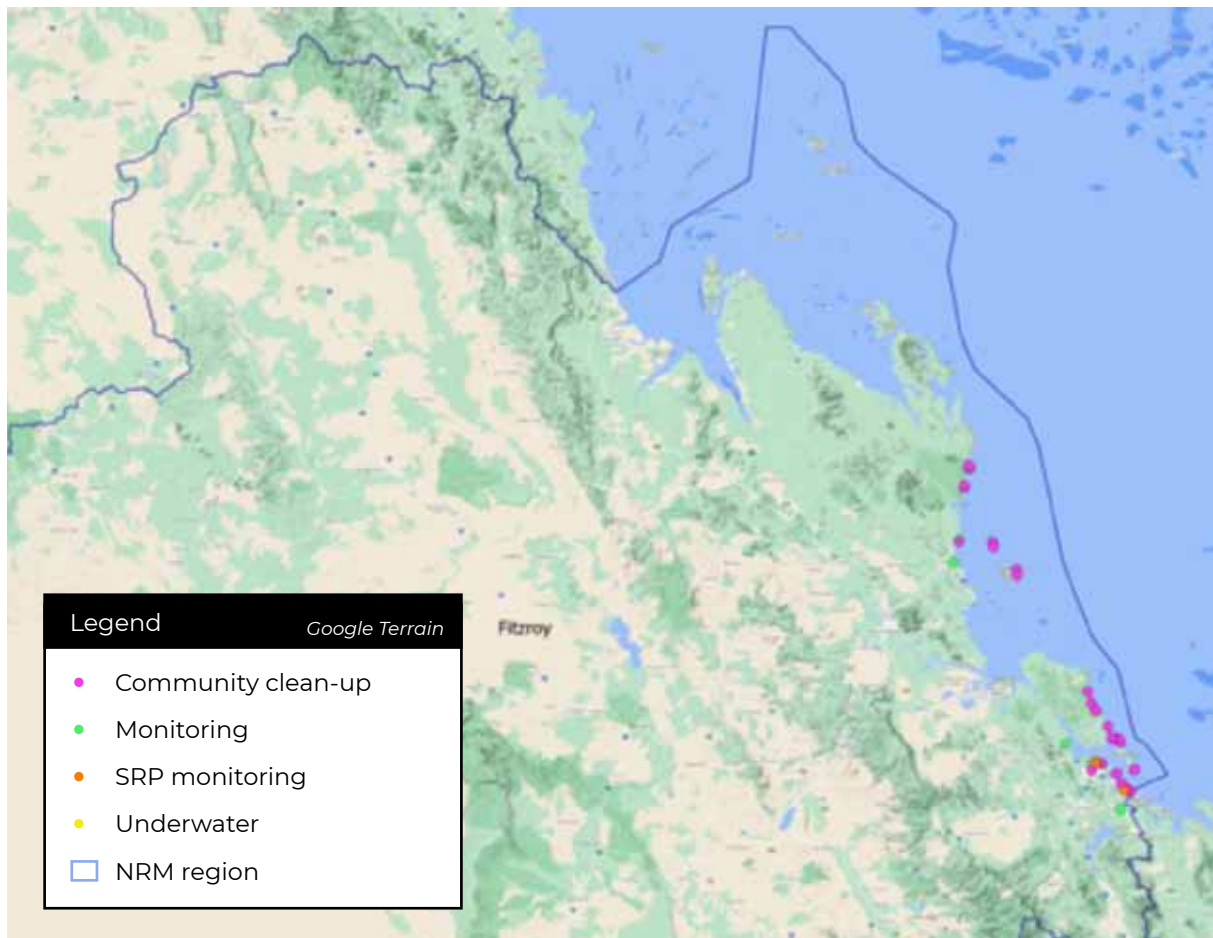
The Southeast Trade winds blow more or less parallel to but slightly in toward the coast, potentially transporting debris from the southern reef area. Occasional cyclonic activity can amplify debris loads.

The jump in debris levels for remote islands comes from activities on Curtis Island. One underwater clean-up was held at Heron Island during 2020 with 3 besser blocks previously part of research activities were removed. Turtle observations were recorded from Curtis Island (turtle nests reported to QPWS), crabs and a stingray with no apparent plastic debris impacts. A bottle was found containing 4 live and 5 dead fish.



Byfield National Park had two clean-ups at Nine Mile Beach and Five Rocks.

Fitzroy clean-up locations



Items and sources - Fitzroy

Coastal beaches in built areas

Clean-up sites / notes	Top-ranking items			
Farnborough Beach Canoe Point, Tannum Sands Lilleys Beach Tannum Sands Main Beach Barney Point, Gladstone Lilys Beach North End, Tannum Sands	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	996	42%
	2	Lids & tops, pump spray, flow restrictor & similar	192	8%
	3	Rope & net scraps less than 1 metre	102	4%
	4	Plastic packaging food (wrap, packets, containers)	90	4%
	5	Straws, confection sticks, cups, plates & cutlery	78	3%
	6	Cigarette butts & filters	70	3%
	7	Plastic film remnants (bits of plastic bag, wrap etc)	68	3%
	8	Glass beer stubbies & pre-mixed alcohol bottles	68	3%
	9	Aluminium cans	51	2%
	10	Plastic drink bottles (water, juice, milk, soft drink)	47	2%
			1762	75%
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				

ReefClean 2020 - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
7	2357	101	80%	4%	4%	35%	65%

Previous 5 years (2015 -2019) - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
312	111529	4913	69%	16%	5%	48%	52%

Items and sources - Fitzroy

Coastal beaches away from built areas

Clean-up sites / notes	Top-ranking items			
Nine Mile Beach, Byfield Five Rocks Beach, Byfield Three Rivers Beach, Byfield	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	9586	62%
	2	Lids & tops, pump spray, flow restrictor & similar	2467	16%
	3	Rope & net scraps less than 1 metre	758	5%
	4	Foam insulation & packaging (whole and remnants)	292	2%
	5	Rope (estimated length in metres)	212	1%
	6	Bleach & cleaner bottles	170	1%
	7	Strapping band scraps	167	1%
	8	Cigarette butts & filters	143	1%
	9	Plastic drink bottles (water, juice, milk, soft drink)	142	1%
	10	Rubber footwear & thongs	137	1%
			14074	91%
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				

ReefClean 2020 - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Rubber	Debris from the land	Debris from the sea
5	15528	651	95%	2%	2%	2%	98%

Previous 5 years (2015 -2019) - Coastal beaches away from built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Rubber	Debris from the land	Debris from the sea
26	54692	6791	87%	3%	3%	7%	93%

Items and sources - Fitzroy

Inhabited islands

Clean-up sites / notes	Top-ranking items			
North East Shore, Facing Island	Rank	Item	Total	%
Heron Island	1	Plastic bits & pieces hard & solid	5750	60%
Wreck Beach, Great Keppel Island	2	Lids & tops, pump spray, flow restrictor & similar	1001	10%
Esplanade Beach, Curtis Island	3	Rope & net scraps less than 1 metre	479	5%
North West Shore, Facing Island	4	Glass or ceramic broken	266	3%
Clam Bay, Great Keppel Island	5	Foam insulation & packaging (whole and remnants)	194	2%
South End Back Beach, Curtis Island	6	Plastic drink bottles (water, juice, milk, soft drink)	182	2%
Mazie Bay, North Keppel Island	7	Plastic film remnants (bits of plastic bag, wrap etc)	155	2%
Gatcombe Heads, East Point Beach, Facing Island	8	Fishing line in metres (recreation)	115	1%
Considine Beach, North Keppel Island	9	Plastic packaging food (wrap, packets, containers)	85	1%
	10	Plastic electrical cable, connectors & fittings	80	1%
			8307	87%
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				

ReefClean 2020 - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Foam	Debris from the land	Debris from the sea
12	9544	454	89%	3%	2%	18%	82%

Previous 5 years (2015 -2019) - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Foam	Debris from the land	Debris from the sea
43	62113	2479	90%	5%	1%	16%	84%

Items and sources - Fitzroy

Remote and protected islands

Clean-up sites / notes	Top-ranking items			
Turtle Street Beach, Curtis Island NP South End Conservation Park Beach, Curtis Island Joey Lees Beach, Curtis Island NP Stone Hut, Curtis Island NP	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	18782	67%
	2	Lids & tops, pump spray, flow restrictor & similar	4702	17%
	3	Rope & net scraps less than 1 metre	1072	4%
	4	Foam insulation & packaging (whole and remnants)	446	2%
	5	Rubber footwear & thongs	286	1%
	6	Plastic drink bottles (water, juice, milk, soft drink)	284	1%
	7	Plastic film remnants (bits of plastic bag, wrap etc)	257	1%
	8	Toothbrushes, brushes & combs, hair ties etc	224	1%
	9	Rope (estimated length in metres)	177	1%
	10	Plastic containers non food (oil, sealant, chemical)	151	1%
			26381	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				

ReefClean 2020 - Remote and protected islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Rubber	Debris from the land	Debris from the sea
6	28130	6	96%	2%	1%	1%	99%

Previous 5 years (2015 -2019) - Remote and protected islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Metal	Rubber	Debris from the land	Debris from the sea
9	4987	369	93%	2%	1%	4%	96%

Fitzroy Photo gallery



1.



2.



4.



3.



5.



6.



7.

1. Facing Island Clean-up event in October. 2. Tangaroa Blue Ambassador Owen Harris conducting monitoring at Farnborough Beach. 3. AMDI data collection at CMERC at CQUniversity for the Facing Island debris. 4. Volunteers ReefClean screen printing their t-shirts as a memento. 5. Gidarjil Land and Sea Rangers at Barney Point, Gladstone for quarterly monitoring. 6. Volunteers at the Curtis Island Clean-up in October 2020. 7. Volunteers heading out on the Curtis Island Ferry for their clean-up event.

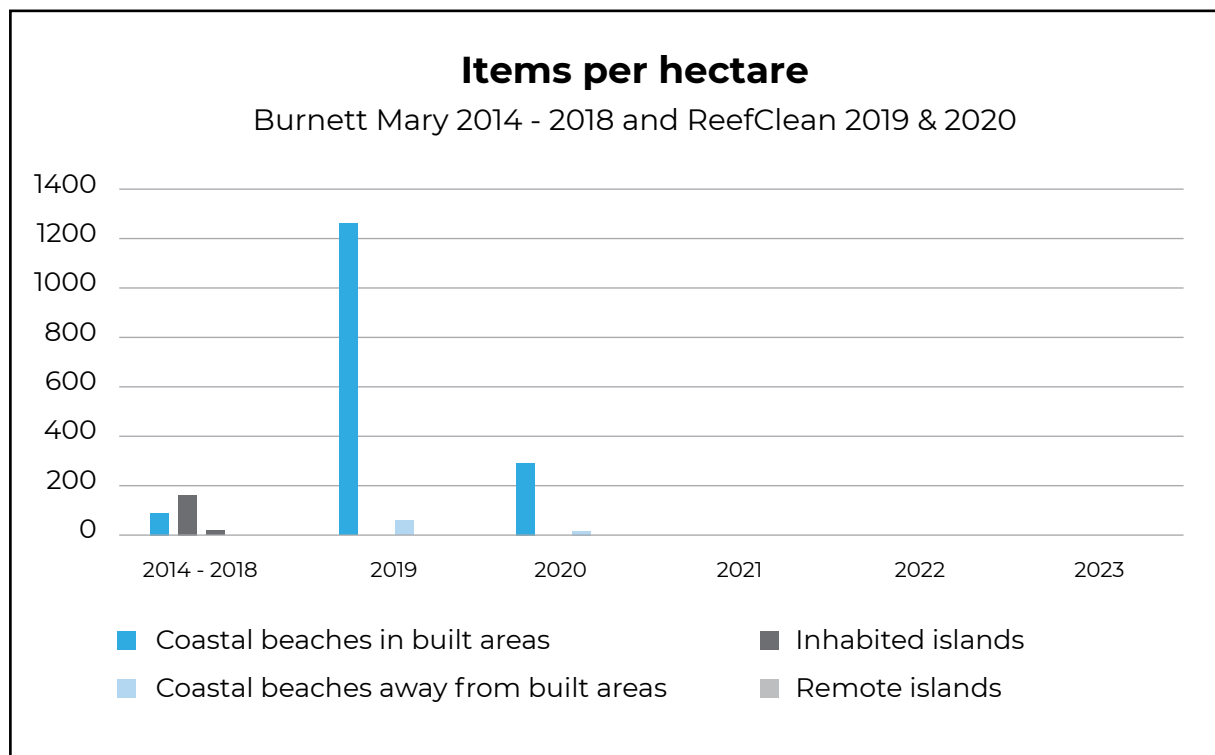
Burnett Mary

Burnett Mary has a lower density of debris compared to the other regions apart from Fitzroy. The EAC flows toward the eastern side of Fraser Island at this point. The South East Trade winds blow slightly in toward the coast, but debris sources from well offshore may be partly intercepted on the Fraser Island coast. Occasional cyclonic activity can amplify debris loads. Local inputs of debris appear to be a little more than half in larger centres and populated islands.

There were no ReefClean 2020 activities for coastal beaches away from built areas or remote and protected islands. During the 2020 activities there were no recordings of dead wildlife.



Burnett Mary clean-up sites



Items and sources - Burnett Mary

Coastal beaches in built areas

Clean-up sites / notes	Top-ranking items			
Innes Park Beach, Innes Park Agnes Water Beach	Rank	Item	Total	%
	1	Plastic bits & pieces hard & solid	512	21%
	2	Cigarette butts & filters	448	18%
	3	Plastic packaging food (wrap, packets, containers)	250	10%
	4	Foam insulation & packaging (whole and remnants)	175	7%
	5	Lids & tops, pump spray, flow restrictor & similar	134	5%
	6	Plastic film remnants (bits of plastic bag, wrap etc)	120	5%
	7	Plastic drink bottles (water, juice, milk, soft drink)	94	4%
	8	Paper & cardboard packaging	78	3%
	9	Aluminium cans	69	3%
	10	Drug paraphernalia	68	3%
			1948	80%
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				

ReefClean 2020 - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Foam	Metal	Debris from the land	Debris from the sea
2	2450	99	73%	9%	8%	54%	46%

Previous 5 years (2015 -2019) - Coastal beaches in built areas							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
106	11392	452	75%	9%	8%	51%	49%

Items and sources - Burnett Mary

Inhabited islands

Clean-up sites / notes	Top-ranking items			
Eurimbula Creek, Bustard Bay	Rank	Item	Total	%
	1	Glass or ceramic broken	97	20%
	2	Plastic bits & pieces hard & solid	74	15%
	3	Lids & tops, pump spray, flow restrictor & similar	37	8%
	4	Rope & net scraps less than 1 metre	26	5%
	5	Sanitary (tissues, nappies, condoms, cotton buds)	25	5%
	6	Plastic film remnants (bits of plastic bag, wrap etc)	17	4%
	7	Metal bottle caps, lids & pull tabs	17	4%
	8	Aluminium cans	14	3%
	9	Rubber footwear & thongs	14	3%
	10	Plastic drink bottles (water, juice, milk, soft drink)	14	3%
			335	70%
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				

ReefClean 2020 - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
2	479	16	51%	22%	8%	50%	50%

Previous 5 years (2015 -2019) - Inhabited islands							
Data source clean-up statistics			Materials			Land and sea source index	
Clean-ups	Items removed	Weight Kg	Plastic	Glass & ceramic	Metal	Debris from the land	Debris from the sea
143	23856	853.55	46%	39%	7%	57%	43%

Burnett Mary

Photo gallery



1. and 6. Quarterly monitoring at Neilson Beach Bargara.
2. Plastic resin pellets found during monitoring at Neilson Beach.
3 and 4. GBR Clean-up at Innes Park October in Bundaberg.
5. Elijah Richardson along the Burnett River showing the results of a successful plastic biofilter source reduction project.

ReefClean Partnering Agencies and Organisations

Thanks to all ReefClean partnering agencies, organisations and volunteers for all their support and efforts during 2020. We look forward to working with you again in the coming year!

- Absolute North Charters
- Assistant Minister for Waste Reduction and Environmental Management Trevor Evans
- Burdekin Shire Council
- Cairns & Hinterland Steiner School
- Capricornia Catchments
- Cassowary Coast Regional Council
- Clean Up Australia Day
- Conservation Volunteers Australia
- CQ University CMERC
- Curtis Island Ferry Services
- Dalrymple Bay Coal Terminal
- Discovery Coast Environment Group
- Djunbunji Land and Sea Rangers
- Eco Barge Clean Seas Inc.
- Elijah's World
- Endeavour Christian College
- EQIP Gladstone Training
- Friends of Conservation
- Gidarjil Development Corporation
- Gidarjil Development Corporation Skilling Queenslanders for Work
- Gladstone Local Marine Advisory Committee
- Gladstone Ports Corporation
- Gladstone Regional Council
- Goondi Junior Land and Sea Rangers
- Great Barrier Reef Legacy
- Great Barrier Reef Marine Park Authority
- Gudjuda Reference Group Aboriginal Corporation
- Iamagal TSRA LSMU Rangers
- Jabalbina Aboriginal Corporation



The Tangaroa Blue team at the tip of Cape York during the 5 Beaches Loop Clean-up in October.

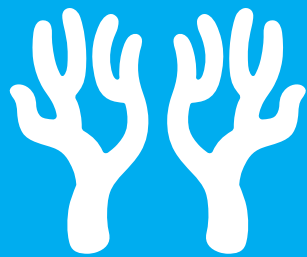
ReefClean Partnering Agencies and Organisations *(continued)*

- Kuku Yalanji Traditional Custodians
- Kuuku Ya'u Land Trust Rangers
- Kuuku Ya'u Traditional Custodians
- Lockhart River Aboriginal Council
- Lockhart River State School
- Low Isles Caretakers
- Mackay Turtle Watch
- Miallo State School
- Mossman State High School
- North Queensland Conservation Council
- Northern Peninsula Area Regional Council
- Northern Peninsula Area State College (Bamaga Junior Campus)
- NPARC Apudthama Land and Sea Rangers
- NQ Dry Tropics
- Orpheus Island Research Station
- Pioneer Catchment and Landcare Group Inc
- Porumagal TSRA LSMU Rangers
- Queensland Parks and Wildlife Service (QPWS)
- Radiant Life College Innisfail
- Reef Check Australia
- Reef Guardian School's Future Leaders Eco Challenge (FLEC)
- Seaside Scavenge
- South Cape York Catchments
- Tagai State College - Yam Island Campus
- Tangaroa Blue Foundation
- Team Turtle CQ
- Torres Strait Regional Authority
- Townsville Trash
- Wavelength Reef Cruises
- Windswell Kitesurfing and Standup Paddle
- Yuwibara Traditional Owner Group



Volunteers at Orpheus Island clean-up had stunning weather!

Tackling marine debris pollution impacting
the Great Barrier Reef



ReefClean

Educate • Reduce • Prevent

www.reefclean.org