

Nicole Nash

Capacity in which I am making this submission: *Founder and Manager of the Last Straw on the Great Barrier Reef*

Qualifications: **BSC:** *Bachelor of Environmental Science (Marine Biology) Deakin University.* **MS:** *Masters of Science (Natural Resource Management) coursework and research, James Cook University.* **Research thesis:** *The investigation of cyalume glow sticks as marine debris on Australia's east and west coast lines and the transportation of them in the marine environment (2016)*

Outline of my submission

- Overview of the Last Straw on the Great Barrier Reef Started and statistics (current)
- Joining (for businesses)
- Issues and concerns raised by business owners
- Alternatives to plastics and greenwashing of products sold in Australia
- The Bill and the definition of 'compostable'
- Circular economy – a seat made of straws
- Post-follow up survey questions and statistics
- Summary and recommendations
- Attachments include: Attachment 1 – Vision, Attachment 2- Abstract and introduction from Research Thesis (N Nash 2016).

NOTE: Throughout my submission I have used **BOLD text** where direct comments based on my undertakings relate to the Bill.

Overview

Working on the water as a marine biologist both in Queensland (QLD) and Victoria I witnessed firsthand the impacts of plastics on marine life. Whilst writing my research thesis in 2016 & 2017 on marine debris, the true expanse of impact that plastic has on the environment was revealed. I worked out on the Great Barrier Reef whilst studying and witnessed the copious amounts of single-use plastic used each day and sometimes plastic blowing overboard into the water. I came up with the idea of creating a source-reduction plan. Single-use plastic straws have always been a pet hate of mine and although they are small it is very surprising once you start crunching numbers as to just how many are used. After extensive consultation with the Tangaroa Blue Foundation, other professionals in the field of marine debris and with the Last Straw Australia (first plastic-straw initiative in Australia), I launched the 'sister-movement' The Last Straw on the Great Barrier Reef (LSGBR). The goal being to eliminate single-use plastics from reef boats operation on the World Heritage Great Barrier Reef (GBR), starting with plastic straws (**refer to Attachment 1 - LSGBR Vision**). Plastic straws are an unnecessary convenience with a big impact and were the initially starting point with the reduction plan as many people and beverages don't need a straw in them. Straws are light-weight plastic that are not recyclable in kerbside recycling or in Red Cycle recycling collection points that are located at Supermarkets. As momentum grew, I broadened the movement out to all businesses within a 200km radius of the GBR coastline. From the tip of Cape York to Bundaberg 375 venues have now registered since the movement launched in 2017.

Where we are now and statistics



HOW ARE WE GOING AT REDUCING PLASTIC STRAWS?

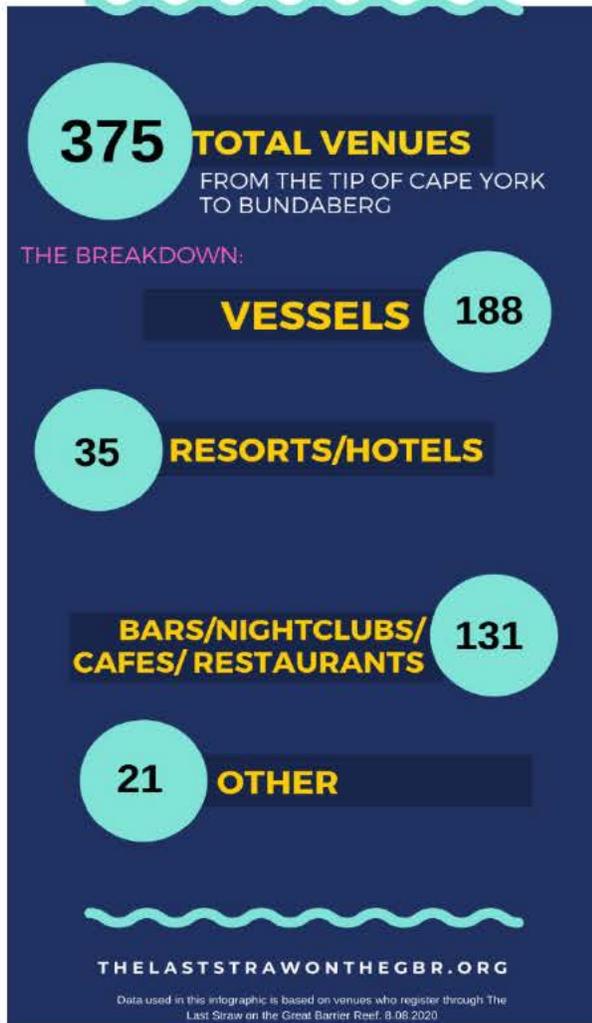


Figure 1. The number of businesses across sectors that are official members of LSGBR

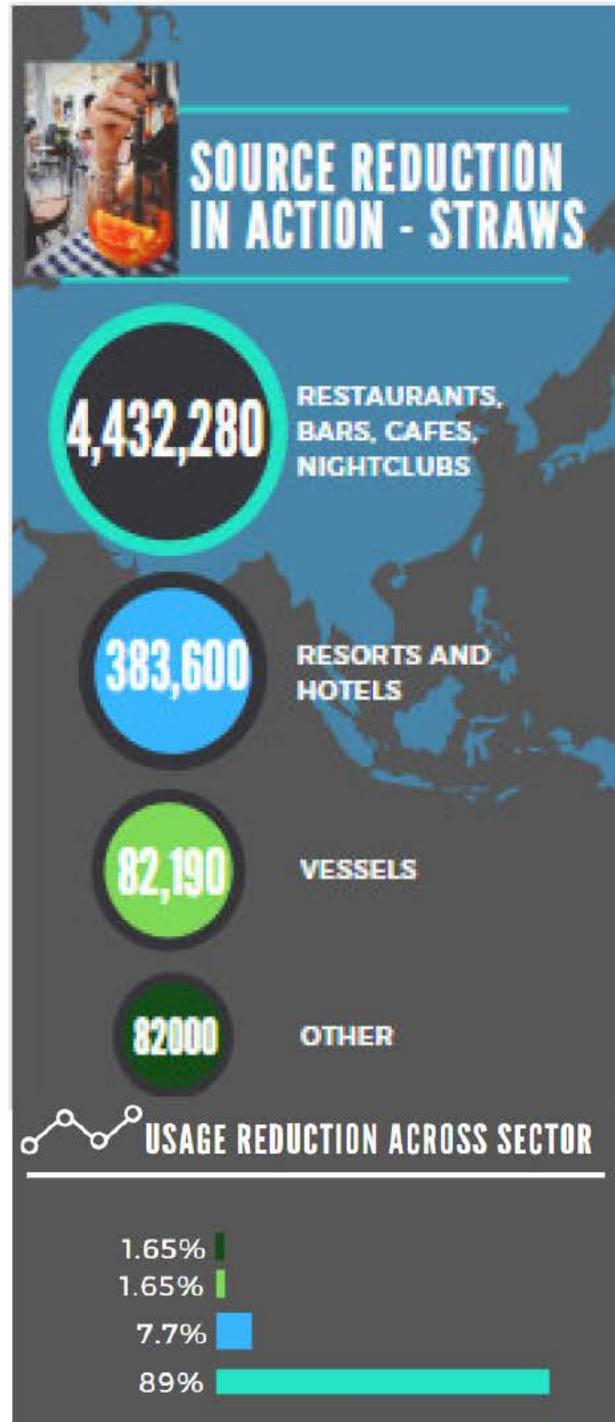


Figure 1. 1 Number of straws used per year by each business type have been added together for all 375 venues to show the annual number of straws now not in circulation each year

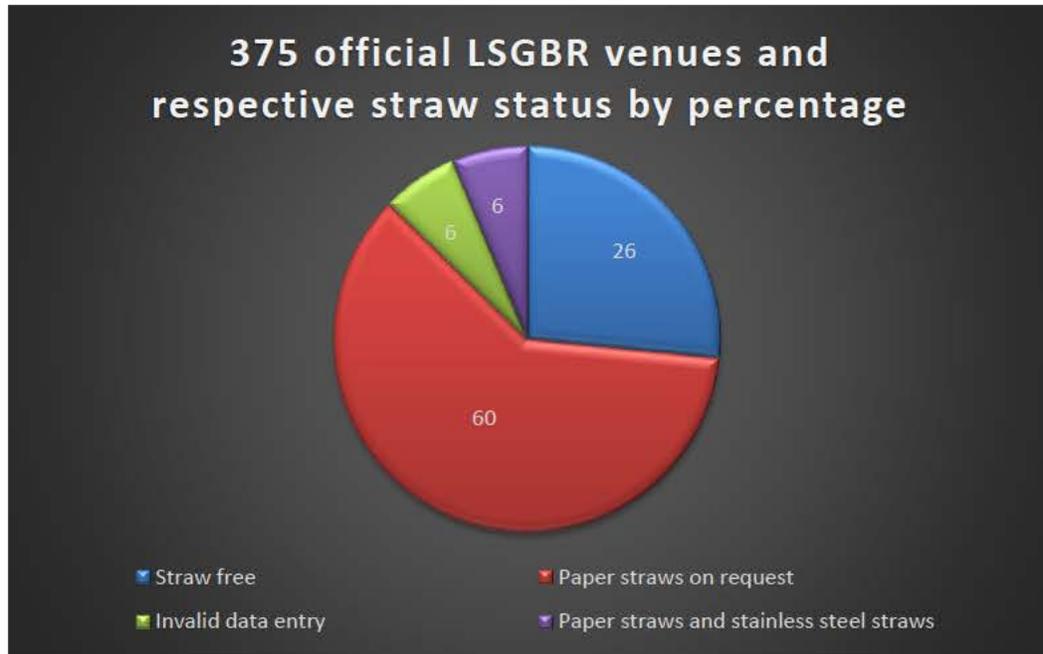


Figure 2. The breakdown of straw status in terms of what venues are using instead of plastic straws from the 375 venues who have joined.

Figure 2 concludes that 60% of businesses have elected to provide paper straws on request, with 26% of venues going completely straw free. Whilst some venues were already plastic straw free prior to joining the LSGBR, more than 80% of venues who joined the LSGBR has changed their habits since joining. Figure 2 above has a 6% invalid data entry, due to some minor issues in collecting data from paper pledges when the movement first launched, this has since been rectified by using online forms.

It can be deduced from the data collected that most venues prefer to have some sort of straw available for beverages. Majority of reef vessels who have joined have gone completely straw free, with a few high-end dinner cruise vessels offering paper straws on request for cocktails. 6% of cafes and food venues have adopted stainless steel straws as an extra piece of cutlery.

From the data collected from all venues who have registered the conclusion on approximate number of straw consumptions per venue size has been able to be deduced indicating just how much plastic can be used by the drink and nightclub venues. One nightclub in Cairns went from using 1,000,000 plastic straws per year to going completely straw free, not only saving on upfront costs, but reduction in labor cleaning up of straws on the floor after the club closed and also on waste disposable fees.

Approximations based on reporting's from businesses

Size	Number straws used per year
Tiny/café/van	500 - 5,000
Small business	10,000 - 20,000
Medium	20,000 -50,000
Large Bar/drinks venue	250,000 - 350,000
Major nightclub	750,000 - 1,000,000 +

Figure 3 venue size and straw quantity used (estimate) based on figures provided by official LSGBR venues when registering

All venues who have currently joined the LSGBR as of 12 August 2020 are listed below

Note: many reef companies have several vessels; each vessel has been counted as an individual 'venue'.

Venue Name	Location
Peppers Airlie Beach	Airlie Beach
Mantra Club Croc	Airlie Beach
Bohemian Raw	Airlie Beach
Cruise Café and Bar	Airlie Beach
Hemingway's restaurant	Airlie Beach
Lure	Airlie Beach
Sorrento Restaurant & Bar	Airlie Beach
The Garden Bar	Airlie Beach
The Kiosk Café	Airlie Beach
Abell Point Marina	Airlie Beach
Café on Louise	Atherton
Love-Lee Café	Atherton
Mungalli Creek Dairy Café	Atherton
Chill Parlour	Ayr
Zen Beach Retreat	Bundaberg
Bundaberg Rum	Bundaberg
Kelly's Beach Resort	Bundaberg
Three Wolves	Cairns
Deep Sea Divers Den	Cairns
Evolution Dive	Cairns
Earth Mamas Kitchen	Cairns
Forty Weight Café	Cairns
Ozmosis Café	Cairns
The Ground Australia	Cairns
Paper Crane	Cairns
Rocco	Cairns
Greenfields	Cairns
Pacific Hotel Cairns	Cairns
Pullman's International Cairns	Cairns
Peppers Beach Club and Spa (Palm Cove)	Cairns
Fitzroy Island Resort	Cairns
Holiday Inn Cairns Harbour side	Cairns
Rydges Plaza Cairns	Cairns
Aqua Luna restaurant	Cairns
Bar 36	Cairns
Blackbird Laneway	Cairns
Blackbird Warehouse	Cairns
Blue Moon Bar and Grill	Cairns
Cairns Coffee Works	Cairns
Cairns Performing Arts Centre (CPAC)	Cairns
Cairns RSL	Cairns
Cherries Go Vita Cairns Central	Cairns
Crown Hotel Cairns	Cairns
Edge Hill Tavern	Cairns

Flamingos	Cairns
Foxy's bar and Grill Fitzroy Island	Cairns
General Store Café	Cairns
Gilligan's nightclub	Cairns
Gin Social	Cairns
Healthy Hub	Cairns
Howlin' Jays	Cairns
Laneway Green	Cairns
Lilo Bar and Restaurant	Cairns
Merchant Coffee (Casino)	Cairns
Misschief Bar and Eatery	Cairns
NOA	Cairns
Ochre	Cairns
Origin Natural Living	Cairns
Piatio Cairns	Cairns
Pier Bar Cairns	Cairns
PJ O'Brien's Cairns	Cairns
Red Beret	Cairns
Reef Hotel Casino (bars)	Cairns
Salt House	Cairns
Sco Brew Kombucha	Cairns
Serpent Bar	Cairns
Tamarind Restaurant	Cairns
THA Fish	Cairns
The Bushfire Bar and Grill	Cairns
The Chamber Room	Cairns
The Chambers Cairns	Cairns
The Coffee Can Café	Cairns
The Coffee Can Van	Cairns
The Cotton Club	Cairns
The General Store Fitzroy Island	Cairns
The Nest	Cairns
The Raw Prawn	Cairns
The Reef House	Cairns
The Takeaway Kewarra Beach	Cairns
The Woolshed	Cairns
Tjapukai Aboriginal Cultural Park	Cairns
Village Café on Collins	Cairns
Waterbar and Grill	Cairns
Yarricino Café (Yarrabah)	Cairns
Zephyr Restaurant Fitzroy Island	Cairns
Lunicos	Cairns
Macchinetta Cairns Airport T2 arrivals	Cairns
The Pier Bar Cairns Airport T2 Departures	Cairns
The Palms	Cairns
Envy Espresso	Cairns
Coral Expeditions	Cairns
Spirit of Cairns	Cairns
Spirit of Freedom	Cairns
Tusa	Cairns

Cairns Amateurs (Racing club)	Cairns
Coffee NQ	Cairns
SkyRail	Cairns
Riley, a Crystalbrook Collection Resort	Cairns
Brother Jenkins Café	Cairns
Quench tea, coffee and spice	Cairns
Lu's Crew Beverage Catering	Cairns
Schnitz Cairns	Cairns
Tropic Spirit Catering Cairns	Cairns
Argo Expeditions	Cairns
Big Cat Green Island Reef Cruises	Cairns
Cairns Dive Centre (CDC)	Cairns
Coal Sea Dreaming	Cairns
Frankland Islands	Cairns
Mike Ball	Cairns
Ocean Free and Ocean Freedom	Cairns
Passions of Paradise	Cairns
Raging Thunder	Cairns
Reef Encounter	Cairns
Reef Experience	Cairns
Compass Cruises	Cairns
Reef Magic	Cairns
Sunlover	Cairns
Rum Runner	Cairns
Eyespy (Fitzroy Island Resort vessel)	Cairns
B'Hive Hairdressers	Cairns
Cairns Zoom	Cairns
Great Barrier Reef Legacy	Cairns
Shirtworks	Cairns
Small World Journeys	Cairns
Tropical Tourism North Queensland	Cairns
Tanks Art Centre	Cairns
Cairns Convention Centre	Cairns
Ellixir Bar Cairns	Cairns
Flinders Bar & Grill	Cairns
McAlister Brewery	Cairns (Smithfield)
Cafe Anywhere. Mobile cafe	Cooktown
Natures Powerhouse	Cooktown
Driftwood Café	Cooktown
Cape Trib Beach House	Daintree
Cockatoo Hill Retreat	Daintree
Daintree Wonder Tours	Daintree
Safari Lodge (accommodation)	Daintree
Daintree Eco Lodge and Spa	Daintree
Heritage Lodge and Spa	Daintree
Daintree Village Hotel	Daintree
Turtle Rock Café	Daintree
Whet	Daintree
Daintree Discovery Centre	Daintree

Daintree Ice Cream	Daintree	Jimmy rums	Port Douglas
Ocean Safari	Daintree	N17 Burger Co	Port Douglas
Daintree Jungle Surfing	Daintree	Port Douglas Yacht Club	Port Douglas
Charter Yachts Australia	GBR region	Seabeen Tapas Bar and Restaurant	Port Douglas
Junction Café	Gladstone	The Bedford Bar	Port Douglas
Explore Group	Hamilton Island and Airlie Beach	The Little Larder	Port Douglas
Tin Town Sweets	Herberton	The Straights Cafe Reef Resort	Port Douglas
Break Free Great Sandy Straights	Hervey Bay	Lady Douglas	Port Douglas
Paronella Park	Innisfail	Oaks Lagoon (Port Douglas)	Port Douglas
Pumpkin Island resort	Keppel Bay	ABC Scuba Diving Port Douglas	Port Douglas
Elysian retreat (Long Island, Sojourn Retreats)	Keppel Bay	Indigo Sailing Charters	Port Douglas
Pumpkin Xpress	Keppel Bay	Wavelength	Port Douglas
Kuranda Fudge Factory	Kuranda	BBQ Infusion smoke and spice	Rockhampton
Kur-Cow Barnwell Farm	Kuranda	Lady Elliot Eco Resort	Southern GBR
Sprout Juice bar	Kuranda	Great Keppel Island Hideaway resort	Southern GBR
Kuranda Butterfly Sanctuary	Kuranda	Great Keppel Island bar	Southern GBR
Kuranda Visitor Centre	Kuranda	Heron Island Resort	Southern GBR
Kuranda Recreation Centre	Kuranda	Keppel Connections	Southern GBR
Mareeba Coffee Works	Mareeba	Peddells Thursday Island Tours & Ferry	Thursday Island, Torres Strait
Castaways Resort	Mission Beach	Magnetic Island Ferries	Townsville
Bingil Bay Café	Mission Beach	Orpheus Island Resort	Townsville
Mission Beach Dive	Mission Beach	Peppers Blue on Blue (Magnetic Island)	Townsville
Lady Musgrave Experience	Musgrave Island	Adrenalin snorkel and dive	Townsville
Peppers Noosa	Noosa	Aquascene	Townsville
Mantra Hervey Bay (Hervey Bay)	North QL	Casual Fare Sailing	Townsville
Vivo Palm Cove	Palm Cove	Pilgrim Sailing	Townsville
Pullman Sea Temple Resort and restaurant	Palm Cove	Sea Link North QLD	Townsville
Reef House (hotel and restaurant)	Palm Cove	Big Mama Sailing	Townsville
Elgreko Greek Tavern	Palm Cove	Pleasure Divers	Townsville
Espresso & Co Café	Palm Cove	Sea Kayak Tours Magnetic Islands	Townsville
Jack and Shanans	Palm Cove	Café Nourish	Townsville
Lime and Pepper Restaurant	Palm Cove	Café Nourish Magnetic Island	Townsville
Nu NU restaurant	Palm Cove	Sandwich Express	Townsville
Underground Palm Cove	Palm Cove	Tamarind Magnetic Island	Townsville
Lucky Fish	Palm Cove	The Early Bird Café Magnetic Island	Townsville
Aquarius	Port Douglas	The Island Bar, Base Magnetic Island	Townsville
Calypso	Port Douglas	Tobin Fish Tales	Townsville
Sailaway Port Douglas	Port Douglas	Man Friday Mexican Restaurant	Townsville
Wildlife Habitat Port Douglas	Port Douglas	Scallywags Café Magnetic Island	Townsville
Thala Beach Nature Reserve	Port Douglas	Paradise Cove	Whitsundays
MV Bahama (Crystalbrook collection)	Port Douglas	Providence Sailing	Whitsundays
Peppers Beach Club (Port Douglas)	Port Douglas	Luxury Yacht Charters	Whitsundays
Mantra Portsea	Port Douglas	Oz Sail and Matador Sailing	Whitsundays
Reef Resort Port Douglas	Port Douglas	Yacht Charters	Whitsundays
Arabella's	Port Douglas	Ocean Rafting	Whitsundays
Barbados	Port Douglas	Explore Whitsundays	Whitsundays
Hemingway's Brewery	Port Douglas	Red Cat Adventures	Whitsundays
		Whitsundays Sailing Adventures	Whitsundays
		Whitsundays Blue - illusion	Whitsundays

Charter Yachts Australia	Whitsundays
Lure Living	Yeppoon

Joining (for businesses) LSGBR

Businesses who register as an 'official LSGBR' venues, are asked a series of questions when registering on our website <https://thelaststrawontheGBR.org/how-to-join> . In order for the movement to effectively track the impact and reduction of plastics the following questions were asked:

1. **Business name, website and location (list individual vessels/resorts/venues and their locations)** (required)
2. **Email**(required)
3. **Name and position title**(required)
4. **Our business will be (select)**(required)
5. **Our business will be (select)** (required)
 - Straw free
 - Offering paper straws on request
 - Offering stainless steel straws in customers drinks (extra piece of cutlery)
 - Providing paper straws on request and stainless-steel straws
 - Other combination of the above (list in next Q below)
6. **Advice to other businesses looking to go plastic straw free? TIP: be inspirational we may share your words of wisdom on social media**
7. **We understand that this is the formal submission, to recognise us as an official member of The Last Straw on the GBR and accept a representative to conduct a routine check on our business to ensure we are upholding our plastic straw free commitment. We understand that our signage will be taken away if not abiding and stats on our straw usage may be used to track the reduction of single-use plastic straws.** (required)
8. **We pledge that we are a plastic-straw free and will remain a plastic straw free business. We understand that paper straws are the only accepted single-use straw for businesses registered with The Last Straw on the GBR. (Read FAQ's for further details).**(required)

Alternatives to plastic straws and 'greenwashing' of products sold in Australia

The alternatives to plastic that are on the market can be very confusing for businesses with many manufactures 'greenwashing' products and marketing them as environmentally friendly when they have still got plastic polymers in them.

Through consultation with experienced professionals in the marine environment it was identified that the **only single-use alternative** to plastic that is **suitable** for a marine environment is paper straws. Other types of compostable straws like plant-based (sugarcane) straws are very sturdy and durable however, they still remain rigid for some time if they do end up in the water ways, posing a threat of ingestion and could cause blockages to marine life. Throughout my work I have prepared and filmed trials of different straws in use and also straws being left in water for several days to show how the different types of straws (paper, plastic, plant-based) change in the water. These video demonstrations assisted some venues in having the realisation and visual reference that plastic and some plant-based straws remain rigid for several days in water. As you will see from the questionnaire above paper straws or reusable stainless steel are the recommended alternatives to single use plastics and these are to be

only given out on request (paper straws). The data outlined in Figure 2 also concludes the alternatives venues have elected to use, should they wish to continue providing straws.

During the course of liaising with businesses to get them to make the switch the key issues that I found that businesses were confused about were:

- Products marketed as environmentally friendly, yet in the fine print still contained plastic polymers. Commonly referred to as 'eco straws' and still made with plastic polymers;
- Where to purchase paper straws;
- What paper straws were going to last the length of time in a person's drink (often myth busting of old paper straw horror stories of soggy paper straws was required);
- The different types and ranges of paper straws now on the market (many were concerned about not having shorter straws for cocktails);
- The different meanings around degradable, biodegradable and compostable products; and
- The cost and consumer feedback that might occur.

As a result I developed Frequently Asked Question (FAQ) fact sheets and emailed these to businesses and published them on our website. This included outlining the different type of materials, stockists in Australia, seeking free samples for businesses and getting them to test and trial paper straws. I developed great working relationships with straw manufacturers in Australia and the United States which allowed me to obtain PROMO codes with some straw companies that were exclusive for LSGBR official members when they joined– another incentive to get them to go plastic straw free. I also contacted several straw manufactures in Australia and overseas (United Kingdom, America and China) who were selling products marketed as environmentally friendly or 'eco' yet in the fine print still had plastic in them as well as also asking about their paper straw options. These greenwashed straws are often marketed as oxo-biodegradable plastics and often have an additive which alters the structure of the plastic and helps them breakdown quicker. The issue is that some alternative plastic types of straws often leave behind residual plastic material and the manufacturing process of the straw in the initial stages can be higher, therefore the energy in versus output can often outweigh any positive result that this type of oxo-biodegradable product may have.

The Bill and the definition of 'compostable'

The *Waste Reduction and Recycling (Plastic Items) Amendment Bill 2020* (the Bill) defines the alternative products that can be used as 'compostable' in reference to the Australian Standards AS4736 (industrial composting) and AS5810 (home composting). The issue with this definition is:

1. The Australian Standards don't appear to be free and accessible for the general public
2. Businesses need clear information on what products or constituents of products meets the legislation
3. In Australia there are very few industrial composting facilities, meaning if there is nowhere to take these products to compost, they will end up in landfill and may not be exposed to the specific environmental conditions they required to kick-start the composting process.

4. Consideration around the impacts of PLA type materials on the marine environment should also be considered and paper straws be the only single-use alternative that can be used in the vicinity of a waterway (10km radius), as per how the LSGBR has carried out this action.

The Bill is certainly the step in the right direction, it just needs the definitions refined, so we have the clear direction and clarity that businesses owners have been asking for and so they can meet their consumer obligations under any future Act. Furthermore, the research I have carried out and effort put in, in securing only paper straws being allowed to be used around the World Heritage Great Barrier Reef should be upheld. Currently the way the Bill is writing would mean the work LSGBR has done in securing 375 venues going to paper straws or reusable alternatives could be reverted should the Bill now permit compostable alternatives like PLA around waterways.

Once further research has been carried out on how PLA reacts in a marine environment and the impact it may have on marine life the use of these types of products around waterways could be reviewed in the future. I strongly encourage the Committee to uphold this body of work that has been running for 3.5 years and consider a only allowing paper straws as the single-use alternative around waterways as opposed to 'compostable' products in this Bill.

Furthermore, implementation of the Bill needs to include educating businesses and consumers on what to do with their new 'compostable' items. Unless there are industrial composting facilities in towns and these items are separated from general waste they cannot be composted. This should be a key part in rolling out this Bill and QLD's strategy on reducing waste. The consumer's also need educating as they are often taking these items or products and using them 'on-the-go' or at home, adequate facilities for them to dispose of these compostable products at food courts/centres is required. This could be done through advertisements, on council rates notices, social media, radio and TV.

Every council in QLD should have 'green garden waste' wheelie bins. Compostable products could then be clearly explained to the lay audience and simply promoting that you can put in the 'green' bin to let council take action on composting these items. Some councils in QLD don't even have recycling bins. A collective approach on addressing waste is required, this Bill is the step in the right direction but does require other pieces of the puzzle to ensure QLD is targeting it's plastic problem effectively.

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Circular economy – a seat made of straws

As mentioned at the public hearing in Cairns on 4 August 2020, as venues went plastic straw free as part of the LSGBR I collected all of the left-over plastic straws from venues across the GBR region. This equated to over 400,000 single-use plastic straws. REPLAS Recycled Plastic Products agreed to donate their manufacturing efforts to recycle these straws in an independent batch and turn them into a park bench seat. The straws were sent down to Melbourne to the REPLAS facility as there is no soft plastic recycler in QLD that could do this. Cairns Regional Council supported this and as a result the park bench is now installed on the Cairns Esplanade for generations to enjoy, promoting a circular economy and demonstrating that there are creative ways to deal with the existing plastic problem the world faces.



From top (left to right):

- (1) 400,000+ plastic straws ready to be freighted to REPLAS.
- (2) Straws at the REPLAS factory ready for processing.
- (3) REPLAS factory and robot at work.
- (4) Seat installed at Cairns Esplanade.
- (5) Plaque on seat.
- (6) Bob Manning Cairns Regional Council Mayor at official opening and Nicole Nash (LSGBR Founder)

Implementation of the Bill should include greater awareness around plastics, recycling of plastics already in circulation and promoting a circular economy. The current generation has been brought up with disposables and an addiction to doing things on the go. Items like coffee-cups, stylish takeaway juices and plastic coloured straws were and are in some cases seen as a fashion trend to be carrying. A mindset and educational change need to occur. Furthermore, QLD should be investing in plastic recycling facilities in regional areas to reduce carbon emissions in transporting materials across the country to be recycled. At a minimum at least one of these facilities should be functional in each state in Australia.

Post-follow up survey questions and statistics

In conjunction with Tangaroa Blue Foundation, Catarina Serra Goncalves (PhD Student at University of Tasmania) follow up surveys to venues have been carried out. Unfortunately, the response has not been as high as expected with only 13 venues so far completing the survey, COVID-19 has also resulted in the inability to speak with some businesses face-to face. The aim of these follow up questions are a part of a Research Thesis that will be produced in coming years by Catarina and other co-authors, the research aims to investigate the effectiveness of source reduction plans and on ground-efforts as opposed to a legislative ban initiating a change in the first instance. Some people believe legislation is the only way to create change and that it has to occur before any effective on-ground works can. However, as you can see the rate of venues already taking action is QLD is proving otherwise. In some instances I had cafe owners asking me desperately where they could buy stainless steel straws – they said they had customers coming up to them telling them that they weren’t going to dine with them as they still used plastic straws. Consumers are a large contributor in driving this type of change. There are several source-reduction plans in action around Australia, Tangaroa Blue’s website has additional information on this. The questions that the 375 venues were sent is located on our website <https://thelaststrawontheqbr.org/how-are-we-tracking-survey/> and also attached. Graphs and summaries of the change to going plastic straw free since joining are outlined below.



Figure 4 Customer reaction to businesses going plastic straw free. Numbers represent individual businesses.

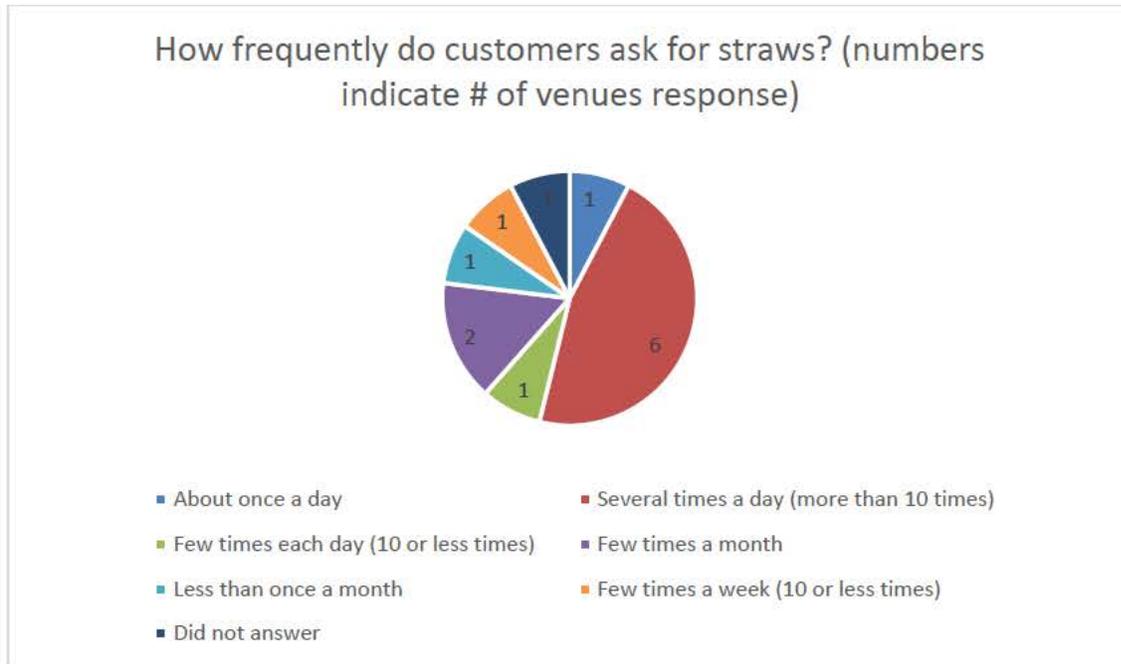


Figure 5 Frequency of businesses getting asked for a straw. Numbers represent individual businesses.



Figure 6 Businesses who are still using alternatives to plastic straws. Numbers represent individual businesses.

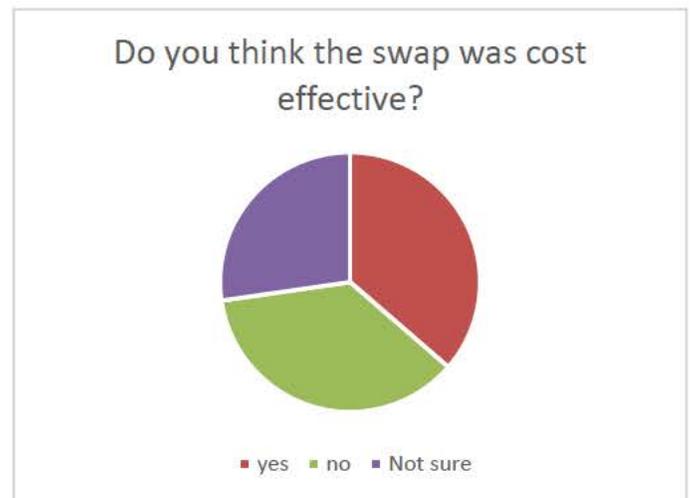


Figure 7 Businesses thoughts on if the process to change to alternatives is cost effective.

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Figure 8: Number of straws used per year. Noting all responses indicating that all businesses are using alternatives to plastic or no straws at all

Venue type	Before - when using plastic straws per year (if using previously)	Current use of straws (paper, or alternative to plastic) PER year?
Mobile drink vendor	0	0
Café. *note this café never used plastic straws.	0	13000
Bar	5000	0
Fine dining restaurant	10000	2000
Nightclub	600000	240000
Camping tour company	0	0
Cafe	0	0
Catering company	1000	0
Reef Vessel	0	0
Bar/nightclub	240000	70000
Casino	340,000	142,500
Takeaway venue	500	0
Reef Vessel	0	0
Total	1,196,500	467,500

This is a 61% reduction in use of straws. These 13 businesses combined, alone now use 729,000 less straws per annum.

Analysing just the few responses from these results indicates that a positive change from customers is evident, venues have significantly reduced their overall use of a single-use product (straws) (61%) and have 100% of venues who have joined LSGBR not reverted back to plastic straws. The cost is sometimes a concern for customers, in the initial registration of venues we asked them to give any tips to other venues looking to make the change. Many said things “like the cost is irrelevant, there is no cost to the environment, it is a way forward, great movement and plastic alternatives are becoming the new normal”. Although the actual costs for changing to alternatives is not able to be deduced at this time and is difficult to deduce given that it is variable depending on how the business owner wants to use their straws in terms of consumption rates. The data above in Figure 8 indicates that venues generally halve their consumption of straws as a product when switching to alternatives, extrapolating this against general straw costs could be done to determine the differences in costs for paper versus plastic. Obviously, those venues who have gone 100% straw free have an instant cost-saving. You will notice in

some of the survey responses that some of the venues never used plastic straws (zero) and have continued not to use plastic straws since joining. The price also varies greatly between the type of paper straw used, often a higher quality straw will cost slightly more, however a cheaper paper straw may mean someone needs to use two straws to drink their beverage due to less durability in water.

Summary of my comments on the Bill and suggestions:

- The Bill is the step in the right direction for QLD to address its plastic waste issue.
- The Bill should consider the work of the LSGBR and maintain a restriction on paper straws being the **only legal** single-use alternative compostable option that venues can use around waterways.
- Implementation of any Bill needs the on-ground infrastructure such as compostable facilities for the new introduced-compostable single-use products to be processed in, this should be considered, and a strategy developed to roll this out across local councils.
- Even without the infrastructure currently in place to do composting, this Bill could still be implemented. After all QLD does not have the facilities to process the current single-use plastics materials either and alternatives that have been proposed are much better than plastic.
- The Bill should have higher penalty units for companies and businesses who fail to abide by this legislation. Currently 50 penalty units in QLD for a large business would be cheaper to pay than the cost of purchasing single-use plastic products for the year.
- The Bill should include Juice Boxes as a banned product -there are already alternatives on the market, these include glass bottles, plastic bottled (recyclable), carton style beverages.
- The Australian Government and Australian Competition and Consumer Commission should be following up suppliers of products who are 'greenwashing' their products and holding them accountable.
- The QLD and Federal Government should consider developing a clear logo for what products meet this new legislation and implement this across the state.
- Education to children, adults, businesses and tourists are required to implement this Bill.
- Other plastic products like coffee cups, glow sticks, balloons and water bottles should also be explored for future legislative bans.

Once again I reiterate the **most important point again** and ask the Committee to consider this submission and information around the use of only 'paper straws' being used as a single-use compostable alternative to plastic straws (reusable stainless steel alternatives are fine also) around the vicinity of waterways (10km radius), purely because many PLA straw alternatives still remain rigid in water and pose a threat to marine life. This could be defined within the Bill for specifically venues around the Great Barrier Reef Marine Park are only allowed to offer compostable 'paper straws' as a single use plastic alternative, ideally this would be applied across all of the *banned single-use plastic items* (as defined in the Bill). The work I have done over the last 3.5 years has allowed 375 venues to join and eliminate nearly 5 million plastic straws from circulation each year, all these venues are within a 200km radius of the reef and are only using paper or stainless steel straws. Simply implementing a new Bill that allows other alternatives like PLA will likely blur the lines of what is the safest alternative to plastic around waterways and put the GBR at risk of being exposed to foreign material other than paper products that would soften if they did fall in the water.

Attachment 1 – Vision

The Last Straw on the Great Barrier Reef

Movement summary:

The Last Straw is a campaign to end the use of the plastic straws in hospitality venues around Australia. The Last Straw on the Great Barrier Reef (GBR) is working in-kind with the Last Straw Australia to support a similar vision. The Last Straw and the Last Straw on the GBR aims to tackle the issue from both sides- encouraging consumers to use less plastic straws, and encouraging businesses to give out fewer straws through staff training and options for straw alternatives. Both organisations are non-for profit, The Last Straw Australia was founded by Eva MacKinley (Sydney based) in 2013, The Last Straw on the GBR was researched/developed by Marine Biologist Nicole Nash (Cairns based) in 2016 and officially launched in early January 2017. Both movement founders have put their heart, soul and money into getting these movements happening.

The vision

The Last Straw on the GBR aim is to facilitate a change of culture in the way we use and think about plastic straws in Australia. We see engaging operators on the water as one of the biggest opportunities to start to make this change by showing environmental awareness when it comes to plastics. As well as re-training the hospitality/bar industry to think about plastic straws and their environmental impact and not just a convenience, whether on the GBR or in a bar. By removing plastic straws directly from vessels, it decreases the chances of them ending up in the ocean and them being ingested by marine life.

We are also tapping into changing customer habits regarding plastic straw use and the growing trend of more sustainable and environmentally choices when it comes to consumption. Including assisting with education to business owners.

This is more than a trend. At The Last Straw on the GBR, we believe that it makes no sense to continue to use plastic straws at the volume we do, and that big change can be made through small everyday actions driven by everyone.

The problem with plastic straws:

Plastic straws are an unnecessary convenience with a big impact. Disposable plastics contribute a great deal to the issue of waste worldwide, plastic straws being a major part of that. Plastic doesn't degrade in landfill conditions for at least 450 years, meaning that every piece of plastic ever made still exists on earth today. Furthermore, that plastic never fully breaks down, it breaks up into smaller pieces, called microplastics.

Animals from whales to seabirds to the very smallest creatures of the ocean eco-system are ingesting plastics on a daily basis. Not only are some animals starving to death with stomachs full of plastic, we're finding increasing numbers of fish reaching our tables with toxic plastic embedded in their systems. By the year 2050 it is estimated there will be more plastic in the ocean by weight than fish.

The alarming thing is the disconnection between what's in our hands and where it comes from or where it goes when we're finished with it. A single plastic straw might seem innocent enough, but multiplied by the billions of people that buy billions of drinks across the world every single day, and you start to get an idea of the scale of the problem.

The Last Straw on the GBR is about changing the attitudes and culture around plastic straw use and disposal from consumer and businesses. Single-use plastics are a result of the manufacturing industry in the 1960's; unfortunately, plastics have made people all over the world very lazy. From plastic cutlery, plates, straws, wrapping and so on they are all made for single use. This habit has clogged landfills, with plastics eventually ending up in the ocean and even now we are seeing these plastics appearing in our own food chain – inside marine life (whales and fish) as well as it even appearing in our sea salt (micro-plastics)!

Business and vessel messaging

Why should my business and vessel (s) reduce its use of plastic straws?

A recent shift in consumer focus to organics, fair-trade, local sourcing, low waste and sustainability means that people are becoming more conscious of where they put their money. People want to know that their purchases are not having a negative impact on the world- and well, who can blame them?

This is more than a trend. This is a permanent and conscious move by consumers to shift their lifestyle to match their beliefs. At The Last Straw on the GBR, we believe that this is a move that everyone will make eventually. It makes no sense to continue to use plastic straws at the volume we do. So the question is- will you be one of the first to get on board and pioneer a stop to the use of disposable plastics? The GBR is a World Heritage place, with millions of tourists visiting the reef each year; it makes sense to make your business more environmentally savvy when you are operating on the largest living organism in the world! People don't need a straw in their can of drink, a paper cup or a glass is a great alternative to using a plastic straw to consume your drink. Some people need straws for medical conditions and in this case, we recommend offering paper straws or allowing people to bring their own reusable type that is fit for their purpose – keep reading to find out why!

By removing the source (vessels having straws on board) from the GBR it limits the chance of straws ending up in waterways, in turn assisting in reducing the consumption of plastic straws by marine life.

Yes, you might spend 2 seconds more explaining why you don't offer straws, but our bar signage will assist you in saying those few words. At the end of the day the cost of what plastic straws are doing to the environment outweighs any argument against change.

Why become a member of The Last Straw on the Great Barrier Reef?

The Last Straw on the GBR has been adopted from the national campaign The Last Straw, which is currently capturing the imagination of consumers across Australia. We have a strong social media following, we have a big reach and we have an idea that is easy to get on board with, literally.

Membership is completely free and has a lot of great perks- like looking really modern and cool to your customers when listed on our website. Reducing straw output means you save money and our social media reach ensures that your vessel(s) gets the added bonus of super positive high-profile marketing. Our model means that you get signage to display and training information for your staff to be more straw conscious when serving. Not to mention that your venue gets to come on board with the movement to end the use of disposable plastics!

There really isn't any downside!

Will this cost me any extra time or money?

At the end of the day there is no cost to save the environment, however the hip pocket needs attention in order to determine the actual cost to your business. Firstly, we don't charge anything to be a part of the campaign and offer support, guidance, marketing and promotion all for free. Venues have the option of going completely plastic straw free or providing alternatives to plastic, as paper straws are dearer than plastic straws there will be increases in costs if you continue to hand out straws like for like. Now, the important bit is with this movement is to only hand out your alternative on request – this is about consumer change after all! This will likely decrease your costs significantly over time.

Alternatives:

Why do you recommend only Paper Straws as an alternative single-use item?

- Paper straws are the only single-use item that will soften and breakdown in any marine and natural environment (if they do happen to make their way there).
- Compostable bioplastic products and many PLA products will only decompose in Industrial composting facilities (this does not include home composting units) and **will not break down in marine or natural environments**. They often require specific environmental conditions to start composting process.
- Given that Industrial composting facilities are not widely available to the Australian public (there is literally only a handful), a sole swap to compostable (PLA) products in open environments **will not result in a reduction of waste sent to landfill** and if littered or replaced like-for-like. We must reduce our overall consumption of all single-use items.
- Bioplastic products present similar risks to marine and wildlife (ingestion) as they will not biodegrade in the natural environment. Therefore, **Last Straw on the Great Barrier Reef**, does not endorse the use of bioplastic compostable single-use straws, see our [FAQ's](#) for further information.
- We recommend businesses explore reusable alternatives like stainless-steel straws or even sell these with your business name on it and allow people to reuse them time and time again.

Furthermore, **remember your business operates on the World Heritage Great Barrier Reef** – straws can blow overboard, plastic or biodegradable plastic alternatives still remain hard in the water – posing the same threats as a regular plastic straw. **The best alternative for boats on the water is no straw in**



the first instance or PAPER– paper straws will go soggy after approximately 1 hour in the water or in a beverage. They pose the least threat to marine life via ingestion and penetration into animal’s noses due to their ability to absorb water. Don’t be fooled by the words compostable, degradable and biodegradable! **When a business wants to use paper straws, we highly recommend they also take steps to reduce their overall straw use first and keep the use of paper straws minimal by handing them out only on request.**

But we at The Last Straw on the GBR believe that no straw is better than any current straw alternatives. OR BYO reusable straw.

Initial vision established end of 2016 and launched in January 2017.

NOTE: after gaining significant momentum and enthusiasm from businesses operating on the land, The Last Straw on the GBR branched out to all businesses operating within a 200km radius of the GBR coastline not long after launching.

There is no excuse for single use!

Attachment 2

My background and Research.

Abstract of Research thesis:

The investigation of cyalume glow sticks as marine debris on Australia's east and west coast lines and the transportation of them in the marine environment (2016)

This study investigated the accumulation and abundance of cyalume glow sticks around Australia's eastern and western coastlines. Secondary data used for this study was provided by the Tangaroa Blue Foundation (TBF) in conjunction with the Australian Marine Debris Initiative, whose goal is to remove and reduce debris on Australia's shorelines. Data from beach clean ups held across Queensland (QLD) and Western Australia (WA) were analysed to determine if seasons and cyclones influence the accumulation of cyalume sticks, a form of marine debris. The source of the sticks was sought by surveying manufacturers in Australia. This study is limited to eight sites in each state being examined due to the TBF relying on volunteers to conduct clean ups. Statistical analyses were used to determine any significance between states, seasons and sites across each state. Although the focus of the study concerned cyalume sticks, data provided by the TBF allowed for further investigation of foreign debris and plastic waste found across the states. The results suggested that cyclones influence the quantities of sticks found in QLD, with more sticks being found at sites nearby where cyclones made landfall. In WA, no cyclonic influences were determined, but a significant amount of sticks was found in spring over any other month. The most common type of stick found in this study, the A5, belongs to the longline fishing sector, however, none of the manufacturers surveyed could confirm they sold this type in Australia. Although the source of the A5 sticks was unable to be traced from this data, it is highly plausible that the sticks being found at these locations are coming from international countries, given the evidence that foreign debris has been identified in the same

Introduction

Globally marine debris has been a major concern over the last 40 years (Jambeck 2015). The exact amount of debris in the world's oceans is one of the key issues debated in the literature (Nash 2016). Marine debris has been defined by Zhou (2011, p.1998) as "solid materials of human origin discarded at sea or reaching the sea through waterways". Whether disposed of either on or offshore, any type of pollutant that enters the marine system can be considered as marine debris (Jambeck 2015). Once in the marine system, debris can affect multiple organisms. As described by Schuyler (2004) and Eriksen (2014) ingestion and entanglement are the two main ways that marine debris can affect marine life. Studies on the stomach contents of deceased marine life have revealed that plastics are being ingested readily by organisms in the wild (Thompson 2009, Schuyler 2012). Plastic objects that are found in the marine system, with the exception of fishing lures, are not intentionally designed to look like edible food to marine organisms (Moore 2008). However, thin plastics expand in the water, appearing to look like jellyfish, attracting marine life such as sea turtles, who then ingest the foreign food source (Moore 2008). Ingestion of plastics can cause a range of harmful effects, including exposure to toxic chemicals as plastics can absorb organic pollutants on their surface, which can then be transposed to organisms (Schuyler 2012). Conversely, entanglement is often a prolonged death to animals and generally associated with larger types of debris. It is evident from the current literature, that plastics are

the dominant and most concerning type of marine debris, due to plastics high resistance to aging and a physical profile that allows them to survive for centuries (Cole 2011, Seville 2012). Although sunlight (ultra violet) and seawater increases the biodegradation process of plastics, fragmentation of plastics into smaller pieces, then makes them only more consumable for marine life (Moore 2008, Jambeck 2015).

References

- Cole, M., Lindeque, P., Halsband, C., Galloway, T S. (2011). "Microplastics as contaminants in the marine environment: A review." *Marine Pollution Bulletin* **62**(12): 2588-2597.
- Jambeck, J., Geyer, R., Wilcox, C., Siegler, T., Perryman, M., Andrady, A., Narayan, R., Law, K. (2015). "Plastic waste inputs from land into the ocean." *Science* **347**(6223): 768-771.
- Jones, M. (1995). "Fishing debris in the Australian marine environment." *Marine Pollution Bulletin* **30**(1): 25-33.
- Moore, C. J. (2008). "Synthetic polymers in the marine environment: A rapidly increasing, long-term threat." *Environmental Research* **108**(2): 131-139.
- Schuyler, Q., Wilcox, C. Townsend, K., Wedemeyer-Strombel, K., Balazs, G., Seville, EV., Hardesty, BD. (2016). "Risk analysis reveals global hotspots for marine debris ingestion by sea turtles." *Global Change Biology* **22**(2): 567-576.
- Seville, E., England, M., Froyland, G. (2012). "Origin, dynamics and evolution of ocean garbage patches from observed surface drifters." *Environmental Research Letters* **7**(4): 044040.
- Thompson, R., Moore, C., vom Saal, F., Swan, S. (2009). "Plastics, the environment and human health: current consensus and future trends." *Philosophical Transactions of the Royal Society B: Biological Sciences* **364**(1526): 2153-2166.