Plastic Pollution in Our Oceans: Local and Global Solutions

*The **United States Consulate General**, in partnership with the **South African Maritime Safety Authority**, the **International Ocean Institute – African Region**, the **V&A Waterfront**, and **Operation Phakisa**, held a public discussion on international, regional and local perspectives on ocean sustainability, with a focus on mitigating plastics pollution.*

Tuesday 18 July 2017

Auditorium, Two Oceans Aquarium, Cape Town

Contents

Background

Recent studies on the amount and nature of plastic that is ending up in the ocean, as well as the ecosystem and health impacts associated with this modern source of pollution have caused an increase in public awareness of the issue and concern about how to tackle it. Eighty percent of plastic that ends up in the ocean is getting there through land-based sources. In a world that produces 300 million tons of plastic per year and about eight million tons of that ending up the ocean, from where it is almost impossible to retrieve, the issue of plastic pollution has become a global concern (Ocean Atlas 2017). The solution to the majority of plastic pollution in the ocean starts on land, and while we are only just coming to terms with the scale of the problem, we are also looking for innovative, collaborative solutions.

This forum was organised as part of Dr Jenna Jambeck's, tour to South Africa to discuss her expertise in marine debris. Her tour also included the inaugural African Marine Waste Conference that was held in Port Elizabeth from the 11th – 14th July 2018, and public engagements in Plettenberg Bay, Hermanus and Durban. The Cape Town public event was jointly hosted by the United States American Consulate, SAMSA, IOI-SA, Operation Phakisa and the V&A Waterfront.

This forum on plastic marine debris is intended as one of many opportunities for decision makers and experts to get together to discuss solutions and mitigation measures to prevent plastic reaching our oceans, as stakeholders begin to realise the urgency of this issue. It is anticipated that this will be the first of many structured discussions that allow for effective engagement amongst the public, academics and government stakeholders on a variety of marine and maritime subjects.

Schedule

09:30	Welcome remarks	Ms Kim McClure – Acting US Consul General
09:45	Plastic Pollution in our Oceans (Chair)	Mr John Duncan – WWF-SA
10:00	Overview on South African Marine Waste Management Issues, Mitigation and Marine Protection	Captain Ravi Naicker – South African Maritime Safety Authority
10:15	Finding Solutions to Africa's marine waste challenges; read out from the African Marine Waste Conference	Dr Tony Ribbink – Sustainable Seas Trust
10:30	Microbeads: what are they and why are they still here?	Dr Shannon Hampton – International Ocean Institute
10:45	Tea and Refreshments	
11:00	Keynote Speaker - Plastic Pollution in Our Oceans: Local and Global Solutions	Dr Jenna Jambeck – New Materials Institute, University of Georgia
11:20	Panel Discussion	All Speakers – Chaired by John Duncan – WWF-SA
12:10	Acknowledgements and Closing Remarks	Mr John Duncan – WWF-SA

Acting Consul General, Ms Kim McClure, welcomed the audience to the workshop and expressed what an honor it was to bring open the day on behalf of the U.S. Consulate in Cape Town and from Embassy in Pretoria. She expressed pleasure at the opportunity to be partnering with Operation Phakisa, the South African Maritime Safety Authority (SAMSA), the International Ocean Institute, the V&A Waterfront and Two Oceans Aquarium, and the Sustainable Seas Trust to bring Dr. Jenna Jambeck from the University of Georgia to participate in the day's event. Dr. Jambeck is the world's foremost expert on quantifying the amount of plastic waste in the world's oceans, and it is acknowledged that this is both a timely issue and one that is very relevant to the Africa, which receives a disproportionate amount of the world's plastic waste. The U.S. government considered itself a partner with South Africa in both the protection and conservation of the world's oceans and in thinking about ways to sustainably and creatively foster the "blue economy" as a means of job creation in South Africa.

Introduction: Plastic Pollution in Our Oceans

The Chair of the mornings' proceedings, John Duncan, described how 93% of plastic marine debris is consumer waste and 80% is generated on land. At present, design practices and recycling technology mean that 80% of plastics have little to no value at the end of life. This is particularly true of the many single-use plastic products such as earbuds, sweet wrappers, bottle caps, straws, polystyrene trays and coffee cup lids.

In global rankings, South Africa is second only to the USA in terms of waste generated per person per day (2kg), with 56% of this waste being mismanaged. South Africa produces between 0.09 and 0.25 MMT/year plastic marine debris, which puts us as the 11th highest contributor to plastic marine debris in the world. Four other African countries are also in the top 20, including Egypt (7th), Nigeria (9th), Algeria (13th) and Morocco (18th). Africa contributes significantly to global marine plastic debris, and all five of the countries listed mismanage the majority of their waste (Jambeck 2016).

Rank	Country	Econ. classif.	Coastal pop. [millions]	Waste gen. rate [kg/ ppd]	% plastic waste	% mismanaged waste	Mismanaged plastic waste [MMT/ year]	% of total mismanaged plastic waste	Plastic marine debris [MMT/ year]
1	China	UMI	262.9	1.10	11	76	8.82	27.7	1.32–3.53
2	Indonesia	LMI	187.2	0.52	11	83	3.22	10.1	0.48–1.29
3	Philippines	LMI	83.4	0.5	15	83	1.88	5.9	0.28–0.75
4	Vietnam	LMI	55.9	0.79	13	88	1.83	5.8	0.28–0.73
5	Sri Lanka	LMI	14.6	5.1	7	84	1.59	5.0	0.24–0.64
6	Thailand	UMI	26.0	1.2	12	75	1.03	3.2	0.15–0.41
7	Egypt	LMI	21.8	1.37	13	69	0.97	3.0	0.15–0.39
8	Malaysia	UMI	22.9	1.52	13	57	0.94	2.9	0.14–0.37
9	Nigeria	LMI	27.5	0.79	13	83	0.85	2.7	0.13–0.34
10	Bangladesh	LI	70.9	0.43	8	89	0.79	2.5	0.12–0.31
11	South Africa	UMI	12.9	2.0	12	56	0.63	2.0	0.09–0.25
12	India	LMI	187.5	0.34	3	87	0.60	1.9	0.09–0.24
13	Algeria	UMI	16.6	1.2	12	60	0.52	1.6	0.08–0.21
14	Turkey	UMI	34.0	1.77	12	18	0.49	1.5	0.07–0.19
15	Pakistan	LMI	14.6	0.79	13	88	0.48	1.5	0.07–0.19
16	Brazil	UMI	74.7	1.03	16	11	0.47	1.5	0.07–0.19
17	Burma	LI	19.0	0.44	17	89	0.46	1.4	0.07–0.18
18*	Morocco	LMI	17.3	1.46	5	68	0.31	1.0	0.05–0.12
19	North Korea	LI	17.3	0.6	9	90	0.30	1.0	0.05–0.12
20	United States	HIC	112.9	2.58	13	2	0.28	0.9	0.04–0.11

Source: Jambeck 2016

The Chair highlighted that plastic is a versatile, cheap material that has a long life span, is light weight which cuts down on transport costs and has many useful applications. However, it is frequently mismanaged. Despite the challenges associated with plastic marine debris, there are solutions

available. These solutions need to be implemented at multiple points of the plastic chain; from redesigning products and distribution models, to developing policy and implementing corporate responsibility, as well as improving facilities for collection and recycling and banning some sources of plastic all together (e.g. microbeads). Beach clean-ups and awareness campaigns also play an important role in educating consumers and end-users of plastic products. He challenged the audience to start radically rethinking the way we use plastic, in a world where litter is increasing faster than the human population.

Overview on South African Marine Waste Management Issues, Mitigation and Marine Protection

Captain Ravi Naicker of the South African Maritime Safety Authority (SAMSA) described their mandate to monitor ship traffic in South Africa, ensure safety of life and property at sea; prevent and combat pollution of the marine environment by ships and promote the Republic's maritime interests. With as many as 3000 vessels in Southern African waters on any given day, ships are a significant potential source of marine pollution. The International Maritime Organisation strictly controls dumping at sea through the London Convention/Protocol, and South Africa is a signatory to the MARPOL Convention which incorporates the management and prevention of marine pollution from ships in its various forms. Annex V of MARPOL deals with garbage from ships, and specifies a complete ban on the dumping into the sea of all forms of plastic. It is part of the responsibility of the countries to manage and monitor waste and ensure that there is sufficient waste reception and disposal facilities at ports for ships. SAMSA is the national implementing agency of the MARPOL Convention.

Finding Solutions to Africa's marine waste challenges; read out from the African Marine Waste Conference

Dr Tony Ribbink of the Sustainable Seas Trust explained how the African Waste Network has been tasked to bring people from around Africa to help solve the major crisis facing the continent, in terms of waste management and pollution. The recent conference was an opportunity to link with global networks and bring together experts for high quality presentations, discussions and workshops. People from all facets of life and a variety of countries attended the conference with the goal of putting together a (marine waste) strategy for Africa. Twelve African countries from were represented at the conference. The issues of marine waste are global however, and there were also 14 countries from outside of Africa represented at the conference. Africa is considered the second most polluted continent in the World, and faces rapid growth and high levels of poverty. The conference focused on solutions and how a circular economy could potentially put value back into the communities around the coast.

Dr. Ribbink discussed the importance of measuring marine waste systematically. In order to monitor the success of adaptations, baseline data is required through measurements of marine litter and debris at all scales, from continental to municipal. The problems may seem daunting, but by working together, both within Africa and with international partners, we can build capacity and use existing knowledge and experience to develop projects that can be taken forward. There is already formal support for the African Waste Network within the Abidjan Convention and work is underway for a formal acknowledgement from the Nairobi Convention.

Dr. Ribbink outlined the next steps, which include conducting a baseline data set in Abidjan Convention countries; urban and river projects; coordinated education programmes and capacity building. He also highlighted that every player in the plastics value chain has an important role in solving this issue and hoped for more participation from retailers in the future. Retailers can have a large impact on consumers. He also highlighted the need to bring waste into a tourism context – tourists abhor waste and yet waste doesn't feature in tourism plans or legislation at present so this needs to be addressed.

The African Marine Waste Network Conference was the first step in putting together a Marine Waste Strategy: Guide to Action for Africa to address the challenges associated with marine waste in Africa. (www.sstconference.org.za)

Microbeads: what are they and why are they still here?

Dr Shannon Hampton of the International Ocean Institute spoke on the issue of microbeads in personal care products, and how this source of plastic pollution is often over-looked because people are unaware that there is plastic in household cleaning and personal care products. She outlined how the plastic is too small to be recovered in waste-water management facilities and ends up being washed into rivers or the ocean where it is frequently mistaken for food or accidentally swallowed by marine animals. Not only does plastic have no nutritional value, but it is frequently many times more toxic than that surrounding water because it attracts hydrophobic persistent organic pollutions, such as DDT.

The International Ocean Institute signed on as a partner for the "Beat the Microbead" campaign to give it formal representation in South Africa. Dr. Hampton explained that this is an unnecessary source of pollution which can have negative impacts on both marine wildlife and human health and should be banned from personal care products. She encouraged the audience to sign the petition for a ban on microbeads in South Africa and to work together to combat sources of marine plastic pollution.

Dr. Hampton presented her research (pilot study) investigating the incidence of plastic in the stomachs of sardines from around South Africa, to better understand the rate at which microplastic is taken into the diet of fish. The initial results found evidence of both plastic fibres and solid microplastic in sardine stomachs. This has initiated an Honours project by Kelli Ross at the University of Cape Town that will include a larger sample size and a wider range of small pelagic (sardine, anchovy and round herring) and mesopelagic (lanternfish and lightfish) fish from the South African coastline. This project is ongoing.

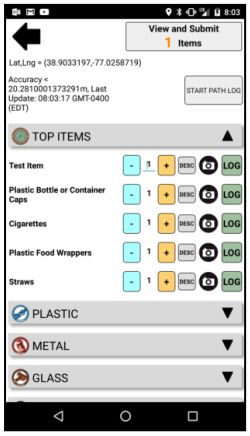
Plastic Pollution in Our Oceans: Local and Global Solutions

The keynote address by Dr Jenna Jambeck of the University of Georgia illustrated how waste in the ocean is connected to sources on land. She highlighted that once it is in the ocean, it can travel all over the world and becomes a global issue. The increase in production of plastic has been very rapid and is still growing. How much of that plastic becomes waste, where it ends up in proximity to the coastline,

and what proportion of it is mismanaged will determine how much ends up in the ocean – it was estimated to be 8 million tons in 2010 (Jambeck *et al*. Science 2015). Dr Jambeck asked the audience to visualise every human standing side by side on the world's coastline, each with 5 grocery bags worth of plastic going into the ocean.

It is a complex problem, with social and human components forming part of the issue. People are the solution to this problem. Solutions need to be creative, socially and culturally-appropriate. Keeping plastic out of the marine system is crucial and has large economic and health benefits. Dr Jambeck highlighted 5 components of the solution:

1. **Industry-led or Reduced Demand** – including advocating for the change you want to see and using fewer disposable items. One choice taken by many people collectively has large potential for change.
2. **Green Engineering, Circular Economy** – Consider end of life at the design stage. This includes shared user responsibility. When producers are brought in through the whole process, they can change the design of products to design for end of life.
3. **Reusable Items, Sharing and Collaborative Economy** – different ways we can meet our needs and promote human well-being while not contributing to waste.
4. **Context-Sensitive Solid Waste Management** – Currently waste management ranges from engineered sanitary waste systems to informal sector collecting and recycling that isn't protective of human health. Infrastructure needs to be in place to collect, capture and retain waste. Household collectors could have improved working environment if collecting from households rather than landfill. Waste management can be improved with private sector involvement and giving plastic a value so that entrepreneurs know they have somewhere to sell collected material.
5. **Litter Capture and Clean-Up** – This requires infrastructure to manage and should incorporate data collection to educate upstream solutions. This is a place for creative solutions, but it is also the end of the line.



The Marine Debris Tracker is a global app that uses citizen science to collect data on items collected on beaches around the world. It is a simple way to log all the items that you collect so that this information can then be used to inform waste management solutions. It records a GPS coordinate for every debris item and allows for near real-time data gathering. Data can also be collected offline and submitted later. The screen shots alongside show the simplicity of the process of submitting data through the app.

Various national and international bodies are working on outreach, diplomacy and policy initiatives towards managing and mitigating marine waste, including the World Bank, G20 and in Africa, the Abidjan and Nairobi Conventions. Dr Jambeck finished off by emphasising the role that youth can play in coming up with creative solutions to address this challenge. (www.marinedebris.engr.uga.edu)

Panel Discussion

John Duncan began the panel discussion by asking how government is engaging with the challenge of marine waste. Capt. Naicker answered that in South Africa, through Operation Phakisa, departments are no longer working in silos and are able to gain insights into activities of other departments, therefore preventing duplications of effort and maximising initiatives. Dr. Ribbink said that all countries in the Network are committed to finding solutions and the Network will share information and include good ideas in framework documents for government departments such that information can be used by everyone.

The Chair asked whether, in countries that have put bans on plastic bags that has proven to be a successful policy and efficient solution. Dr. Jambeck replied that producers' responsibility might result from policy and therefore catalyse design changes. She suggested that in the U.S. for example, it is easier to change policies on smaller levels, that of municipalities or community and move up towards State-wide policy. From there, if there are enough States that take up the policy it makes sense for the producers to change. Therefore, it could be more successful to start initiatives at a smaller scale and allow for growth and increased awareness.

The Chair followed-up by asking what industry is doing in response to the issues, given that industry and retailers play a large role in plastic production. Dr. Hampton responded that in her

communications with manufacturers of personal care products, she had an overwhelmingly positive response with manufacturers moving towards bans on microbeads in their products. This is particularly true of large international companies that have international pressure to change. Local companies are also phasing out the beads, but some retailers, while not using microbeads in their private brand products, still sell products that contain plastic microbeads. Dr. Jambeck highlighted a POLYCO initiative where you can get credit loaded on to a card when you return PET to the mobile trailer as an example of an innovative solution being voluntarily developed by producers. Dr. Ribbink suggested that there are producers that want to do the right thing while selling their products.

The Chair then opened the floor up for questions from the audience.

An audience member referred to an example in California, where legislation has stipulated that, by 2020, the manufacturing of cars needs to be carbon free and asked whether more proactive laws, like this example, would force producers to take more responsibility for plastic production and management. Dr. Jambeck replied that large penalties for non-compliance have been shown to be effective and policies can be a solution and encourage the consideration of recycling into the design stage of products. The Californian example is also interesting because it resulted in new business opportunities around the certification of recycling companies.

When asked how much plastic is being produced through oil conversion technologies and whether it would be possible to use this to replace fossil fuels, Dr. Jambeck replied that this can be a challenge in unseparated municipal waste but there are examples of success. At this stage, it is largely experimental and small-scale. Capt. Naicker replied that, in the shipping industry, there is pressure on ship owners to reduce the sulphur content in fuel and they are looking at alternative fuels for vessels, including fossil gas, methanol and possibly pyrolysis of plastics.

A representative from Fairtrade Tourism asked what interventions the tourism sector could introduce to tackle waste management. Dr. Hampton replied that hotels and tourism facilities could avoid single-use plastics and be conscious of whether the products they use include plastic microbeads. Dr. Jambeck suggested that tourism, particularly hotel and hospitality industries, should ensure that waste is managed properly and drive the development of responsible waste management where it is lacking. She also suggested that there are tourists that want to do good on holidays, and could be included in beach clean-ups for volunteer programs. Dr. Ribbink highlighted that while many tourists are aware of their carbon footprint, they are less aware of their plastic footprint which is something that needs to be improved. The hospitality industry could create this awareness both for tourists and with their staff. Tourism frequently looks at waste as “someone else’s problem”, such as the

municipality or government, but tourists will be put off by polluted destinations. There is a need for studies on the economic impacts of pollution on tourism revenue, particularly in Africa where no data is currently available for this kind of impact.

John Duncan highlighted that South Africa, while quite advanced in some aspects, is still a developing country. It is therefore difficult to make an issue such as microbeads relevant to a large proportion of the population. Many plastic products are cheap and easily accessible, and there are large parts of the country with no formal waste collection, never mind recycling initiatives. He asked the panel how we can make the issue of plastic pollution relevant to all South Africans.

Dr. Jambeck agreed that this is a critical issue and lies in thinking about design and delivery of products. Many people are not aware of the issue, nor do they have the capacity to worry about this issue in the face of other priorities. There are intersectional issues around poverty and human rights that make this a complex issue. Sharing ideas and resources between different areas and countries can help provide insight into the challenges and solutions available. Dr. Ribbink suggested that it would be helpful to treat waste as a resource. South Africa has issues around unemployment and the sorting of waste is a job opportunity, whereby waste could be seen as an opportunity for entrepreneurship that can bring resources back into communities.

An audience member expressed concern that estuaries can become dumping grounds and a sink for microplastics and asked whether there was a way to prevent this. Dr. Jambeck answered that it is easier to clean sand and in many cases you would want to avoid disturbing the sensitive ecology of estuaries. She said that it is important to prevent additional plastic from entering the system. She used the analogy that cleaning up plastics in water bodies without dealing with the source of plastics is like trying to mop the flooded floor while the tap is still running. Dr. Hampton asked the perspective of Dr Holly Nel, who ran a workshop on microplastics at the African Marine Waste Network Conference in Port Elizabeth. Dr. Nel agreed that estuaries remain a knowledge gap, but that one study on the East Coast highlighted the difficulty of clean-up operations. It is therefore important to understand the sources of pollution and collect data to figure out how to manage plastic inputs into estuaries.

One audience member asked whether it was idealistic to expect compliance to new rules. He felt that the best solution is empowerment of people and identifying the values associated with waste. He asked about the cost of collecting waste and if there is anything happening in the world to drive people to be more careful of their environment. Dr. Jambeck replied that it is difficult to know an exact value for the cost of clean-up and volunteer hours are sometimes used as a proxy. Volunteer clean-ups are an excellent way to inspire people. Dr. Ribbink suggested that it is important to create a sense of responsibility around waste.

Dr. Ribbink then outlined how data about waste can help guide decision-making. There is still a lot of information that is needed, but there is hope that the network will bring together people with a broad range of expertise that can use reliable data to come up with appropriate solutions. Globally, there is a demand for recyclable material, and waste is being exported from South Africa to countries like China. There is potential to educate people to see new possibilities for waste as a resource.

Capt. Naicker was asked how the database system works for the monitoring of vessels and whether there are opportunities to integrate other role-players. He replied that it is a restricted access database managed by the Department of Transport.

John Duncan closed off the day by highlighting that while people are part of the problem, they are also the solution. Industry will respond to motivation from a majority of people that make it clear that we don't want a world full of plastic.

Conclusion

The forum was very well-attended with over 75 people, from a wide range of sectors, signing in on the day. This interest suggests that there is an appetite for discussion around the issue of plastic pollution in our oceans and a need for stakeholders to engage further with the public and each other. The issue of plastic pollution in the oceans is a complex one, which needs to be tackled from multiple angles at multiple scales with input and effort from a broad range of stakeholders.

Baseline information and data collection is currently lacking and yet it is required to measure whether waste management initiatives have been successful. Initiatives like the Marine Debris App can start to provide much-needed baseline data to assess the sources of pollution, lobby for action and monitor the success of management interventions. Coordinated capacity development, awareness building and education is also necessary and can be achieved through forums such as the African Marine Waste Network. A large proportion of plastic waste is currently mismanaged, and this is partly a result of inadequate infrastructure for formal waste management, particularly in rural areas.

The five solutions that Dr. Jambeck outlined in her talk will go a long way to preventing pollution reaching the open ocean, from where is it difficult and expensive to retrieve. Platforms like the African Marine Waste Network provide an opportunity for a coordination of efforts and sharing of experience and information. The problem of plastic pollution needs to be tackled by government, manufacturers, retailers, civil society and individual consumers. While it is a large challenge, there are economically beneficial opportunities to be found when creative solutions are explored.

This forum will hopefully be one of many opportunities to bring together experts to tackle this issue and engage with the public about plastic pollution in our oceans. This forum will form the foundation for other similar forums to follow in our pursuit to sustain our oceans.

Background on our presenters:

Captain Ravi Naicker: South African Maritime Safety Authority (SAMSA)

http://www.samsa.org.za/

Captain Ravi Naicker is the Operations Manager at SAMSA's centre for sea watch and response, focussing on marine environment protection initiatives. Previously worked for the National Port Authority in various roles with the last being, Harbourmaster for the Port of Cape Town.

Dr Tony Ribbink: Sustainable Seas Trust

http://www.sst.org.za/

Dr Tony Ribbink is an internationally recognised scientist who applies his expertise in the service of the people of South Africa and Africa as a whole. He bridges the gap between science and community by placing science and technology in the appropriate socio-economic context with the specific aim of improving the quality of life of many rural communities. Hundreds have benefited from Dr Ribbink's capacity-building initiatives and from being positively exposed to science and many continue to benefit from the Sustainable Seas Trust. For many years Dr Ribbink has leveraged science and technology to enable the peoples of different countries to work in concert to achieve African-defined and African-driven visions. He also anticipated by many years the human rights issues current today by, for instance, initiating in the late 1970s the development of the Lake Malawi National Park in which villages were able to maintain their traditional rights.

In November 2007, Dr Ribbinck became a founding trustee and CEO of Sustainable Seas Trust. Preceding this, he was the Director of the World Bank GEF project on Lake Malawi/Nyasa for Malawi, Mozambique and Tanzania. From 1999 to 2005 he managed to international WWF projects on freshwaters, and concurrently, from 2002 to 2007, developed, raised the funds for and managed the African Coelacanth Ecosystem Programme (ACEP).

Dr Ribbink has authored more than 100 scientific and other publications, and his work has been internationally recognised with, among others, a gold medal from WWF for contributions to conservation and education and a silver medal for limnological research, an award only present four times since the society's inception in 1964. In 2008, Dr Ribbink was awarded the Royal Society of Southern Africa's Centenary medal. During his career, Dr Ribbink has also been part of the production of more than 40 environmental education films, initially as an underwater cameraman and later as an advisor and producer.

Dr Shannon Hampton: International Ocean Institute - African Region.

http://www.ioisa.org/

Shannon Hampton is a project coordinator at the International Ocean Institute. She coordinates the four-week Course in Ocean Governance for Africa that runs annually with participants from all over Africa. Since the beginning of 2017, she is also part of the team that is rolling out the WWF-SA Small Scale Responsible Fisheries Training project, funded by TETA, in the four coastal provinces of South Africa. She signed the International Ocean Institute up as a partner for the "Beat the Microbead" campaign when she realised they had no partners from Africa. She has since spearheaded local awareness campaigns in social and traditional media as well as presenting talks at both high schools

and primary schools around the country. She is passionate about ocean conservation in general and considers plastic microbeads as an unnecessary source of pollution. She is campaigning for a ban on plastic microbeads in personal care products in South Africa and is in discussions with the Department of Environmental Affairs on how this can be supported. She has also piloted a project that investigated whether sardines were ingesting microplastic while filter-feeding in South African waters. An important part of the work done at the International Ocean Institute is helping to facilitate effective engagement between stakeholders and government in order to promote responsible ocean governance in Africa.

Dr Jenna Jambeck: Associate Professor of Environmental Engineering. Director, Centre for Circular Materials Management, New Materials Institute, College of Engineering, University of Georgia.

https://newmaterials.uga.edu/

Dr Jenna Jambeck has been conducting research on solid waste issues for 20 years with related projects on marine debris since 2001. She also specialises in global waste management issues and plastic contamination. Her work on plastic waste inputs into the ocean, published in Science magazine in 2015, received widespread publicity, and she has spoken at events for the Global Ocean Commission, Our Ocean Conference, testified to U.S. Congress and is on the advisory panel for the UNEP Global Partnership on Marine Litter. In November 2014, Jenna sailed across the Atlantic Ocean with 13 other women on an eXXpedition voyage to sample land and open ocean plastic, and to encourage women to enter STEM disciplines. She is the co-developer of the mobile app Marine Debris Tracker, a tool that continues to facilitate a growing citizen science initiative. The app has documented the location of over one million litter and marine debris items removed from our environment throughout the world.

Her Jambeck Research Group is leading efforts to shift thinking from waste management to materials management, creating solutions guided by green engineering principals: the design and use of processes and products in a way that minimises pollution, promotes sustainability and protects human health – without sacrificing economic viability and efficiency.

Acknowledgements

All the best work is done when people come together for a common cause - there were a number of organisations that were involved in putting together this workshop. Thank you must go to the V&A and particularly the Two Oceans Aquarium for their generosity in allowing us to use the venue, facilitating the programme and the hospitality. The event wouldn't have happened without the American Consulate, who facilitated Dr Jenna Jambeck's visit and making it possible for her to attend the forum and therefore share her ideas with the South African audience. The International Ocean Institute played a key role in mapping the Agenda and was responsible for the writing of this report. The South African Maritime Safety Authority conceptualised the forum and made it possible for key industry players to benefit. John Duncan was an excellent Chair and kept the discussions positive and solution-driven for a topic that can seem vast and overwhelming. We are very grateful for his insightful input as chair. A very special thank you must go to all the speakers for their willingness to share their work and ideas and to the audience for attending the event and participating in the discussion.