

Aotearoa Plastic Pollution Alliance

End-of-Year Hui

Wellington & Online | 2-3 December 2021

PROGRAMME



Aotearoa
Plastic
Pollution
Alliance

FOREWORD

Tēnā koutou katoa, e hoa mā o te Rōpū Whakakore Para Kirikou

We are excited to gather cautiously at the end of this big year. As the COVID-19 situation continues to develop at an alarming pace, our thoughts are with those affected, at-risk of severe infection, and stuck in lockdown. We are ready to pivot to a fully online hui should COVID-19 make its way to Te Whanganui a Tara/Wellington, but for now we will follow best practice public health measures to keep those attending in-person safe while offering the opportunity to attend and present online for those who cannot or do not wish to travel.



Throughout this pandemic, plastic pollution has still been recognised as an urgent and growing threat to the wellbeing of the taiao/environment and all living creatures - including humankind. Plastic pollution has been the topic of countless media stories this year and remains one of New Zealanders' top concerns according to the Colmar Brunton 2021 Better Futures survey.

Plastics policy has also gained momentum this year. The Government has committed to phasing out numerous plastic products and types, has tightened the rules on plastic waste exports, has shown willingness to join a global plastic pollution treaty, and released its first National Plastics Action Plan. We are pleased to have officials from the Ministry for the Environment giving a keynote presentation on the action already underway and what's next for plastics policy.

The quality of the abstracts we received for our hui shows the breadth and depth of expertise APPA members and others beyond bring to the plastic pollution space. They also demonstrate what APPA has always been about - bringing together science, creativity, business, policy, research and advocacy for the sake of restoring the mauri of Papatūānuku and Tangaroa that is so deeply impacted by plastic pollution.

Finally, I want to acknowledge it has been a little over a year since one of APPA's most treasured founding members, Richelle Kahui-McConnell, passed away. Richelle's participation in APPA's formation helped to integrate mātauranga Māori, Western science and our Pacific heritage to form the core of APPA's being, values, and future - and these elements are embedded in our founding documents and constitution. We strive to honour Richelle's legacy and mission in all APPA's mahi and are reminded that it is an obligation to Te Tiriti o Waitangi to strive for a future without plastic pollution.

Look forward to seeing you at the hui!
Liam Prince, APPA Chair

AGENDA

The **Aotearoa Plastic Pollution Alliance** (APPA) hui will bring together researchers, businesses, policy makers, artists, advocates and those working to mitigate and prevent plastic pollution in Aotearoa and Oceania. It provides a platform for those interested in presenting their research and ideas and a space for collaboration and connection.

The event will take place on **Thursday 2nd and Friday 3rd of December 2021**, both online and in person (COVID19 alert level permitting) at **Victoria University of Wellington: Old Government Buildings, Pipitea Campus. 55 Lambton Quay**, Lecture Theatre 3 (GBLT3) on Thursday and Lecture Theatre 4 (GBLT4) on Friday. Join us for two days of presentations and discussion on multiple aspects of plastic pollution:

Thursday 2 December

Lecture Theatre 3 (GBLT3), Ground Floor

9am – 10.30am: Session A

Opening keynote from MFE
Plastics in the environment (1/2)

10.30am – 11am: Morning tea

11am -12.30pm: Session B

Plastics in the environment (2/2)

12.30pm - 2pm: Lunch break*

2pm – 4pm: Workshop & site visit

The Tiny Plastic Factory.
Meet at Sustainability Trust,
2 Forresters Lane, Wellington

7pm: Conference dinner*

Friday 3 December

Lecture Theatre 4 (GBLT4), First Floor

9am – 10.30am: Session C

Policy and business perspectives

10.30am – 11am: Morning tea

11am -12.30pm: Session D

Community and creative solutions

12.30pm - 2pm: Lunch break*

2pm - 4pm: Workshop & site visit

A zero-waste walking tour of Wellington city showcasing the many businesses and initiatives helping you reduce your waste footprint.

Meet at Tuatua Café, Frank Kitts Park,
Wellington Waterfront

4pm onwards: Social drinks and music

*Lunch and dinner costs will not be covered by the registration. Morning tea will be provided on both days of the conference to attendees.

Register for the event here:

<https://www.eventfinda.co.nz/2021/aotearoa-plastic-pollution-alliance-appa-end-of-year-hui/wellington>

SESSIONS

Session A: Plastics in the environment (1/2)

Thursday 2 December, 9am – 10.30am

Keynote speakers from the Ministry for the Environment: Work programme update from the Ministry for the Environment

Julia Rambacher, University of Canterbury: Microplastic Pollution within an Urban River System.

Laura Revell, University of Canterbury: The role of airborne microplastics in a changing climate.

Session B: Plastics in the environment (2/2)

Thursday 2 December, 11am – 12.30pm

Karin Kvale, GNS Science: Millennial commitment to microplastics and their biogeochemical legacy.

Erik Behrens, NIWA: Plastics and marine debris across the ocean floor in New Zealand waters.

Laurent Lebreton, The Ocean Cleanup: Retracing the origins of floating plastics collected in the North Pacific subtropical gyre.

Session C: Business and policy perspectives

Friday 3 December, 9am – 10.30am

Hannah Blumhardt, Victoria University: Back to the future: making reuse part of the package for curbing plastics.

Dr Trisia Farrelly, Massey university: The road to a binding global plastic pollution treaty.

Helen Townsend, EcoSplat: Using science to inform business decisions and promote behavior change.

Session D: Community and creative solutions

Friday 3 December, 11am – 12.30pm

Lorella Doherty, Rethinking Plastic Revolution: Creative Responses to Plastic Pollution.

Emma Hunter, Algalita South Pacific: The perils of pre-production plastic pellets – a community perspective.

Camden Howitt, Sustainables Coastlines: Litter Intelligence: Citizen science at the forefront inspiring positive actions and solutions to the litter problem in Aotearoa.

SPEAKERS

Session A: Work programme update from the Ministry for the Environment.

Stephen Goodman, Liz Butcher, Daisy Croft and Nicola White.



The Ministry for the Environment's Waste and Resource Efficiency division will provide an update on their work programme. The presentation will include a short overview of the proposed new waste strategy and legislation review and how these relate to transforming

the way that we think about plastic. It will also provide an update on the work underway to address plastic waste including the National Plastics Action Plan, phasing out of hard-to-recycle and single-use plastics, the potential for a new global agreement on plastics and the Plastics Innovation Fund.

Session A: Microplastic Pollution within an Urban River System.

Julia Rambacher, Prof. Sally Gaw, Dr. Olga Pantos, Dr. Amanda Valois



The accumulation of microplastics (plastic pieces <5mm in size) in the environment and the resulting adverse effects are well documented. With the worldwide plastic production ever increasing, and the ocean floor an ultimate sink, questions about the sources of plastic pollution need to be addressed. An estimated 80% of plastic debris emitted to the oceans originate from land-based activities with mismanaged plastic litter identified as a main contributor.

The Kaiwharawhara Stream in Wellington and its tributaries serve as model for an urban river system exposed to a range of potential sources of plastic pollution as it flows through residential and

industrial areas. Here we present the microplastic concentration and common types of plastic polymer found within the water column. Through selecting sampling sites strategically and sampling over an extended time period, the project aims to identify major sources, routes of entry and typical distribution patterns of microplastics within this river system. Gaining a better understanding of the role rivers play in the transport of the small plastic particles from land to sea will provide crucial information and inform mitigation efforts.

Session A: The role of airborne microplastics in a changing climate

Laura Revell, Alex Aves, Sally Gaw, Ella Knobloch, Peter Kuma, Eric Le Ru, Olga Pantos, Helena Ruffell, Walter Somerville



In recent years, airborne microplastics have been detected in a range of urban and remote environments. In 2021 we reported the first detection of airborne microplastics in New Zealand from a series of four deposition experiments carried out on the University of Canterbury campus between January and June 2020. 90% of the microplastics we collected were fibres, indicating that they originate from clothes and other textiles. Because they are small and have low densities, airborne microplastics can be transported with winds around the Earth. Other types of airborne particulate matter (such as dust or soot) influences climate by absorbing or scattering light. To investigate whether airborne

microplastics influence climate, we calculated the optical properties of microplastic fragments and fibres and implemented them in a global climate model. Based on limited information available, we found that airborne microplastics currently exert a minor cooling influence on the climate system, depending on the assumptions made in the model. However, the abundance of airborne microplastics will likely increase in future; therefore so will their impact on climate.

Session B: Millennial commitment to microplastics and their biogeochemical legacy.

Karin Kvale



"Turning off the tap", or ceasing the release of mismanaged waste to the environment, is frequently invoked as a solution to plastic contamination of marine ecosystems. Here I present results derived from the simulation of such a scenario for microplastics in an Earth System Model. From 2022, pollution inputs are ceased and all accumulated microplastic in the model ocean is completely removed, with the ecosystem then allowed to recover. I find a centennial+ timescale deoxygenation

commitment in the global ocean, due to already occurred perturbation of the base of the marine food web. This unavoidable deoxygenation affects deep ocean ecosystems and has poorly understood repercussions. However, removing microplastic from the marine environment reduces the severity of future deoxygenation, relative to continuing with business-as-usual waste management practices and no cleanup efforts.

Session B: Plastics and marine debris across the ocean floor in New Zealand waters.
Erik Behrens, B. Wood, D. Bowden, C. Chin, O. Anderson



Observation data from seafloor photographic imagery collected by NIWA's Deep Towed Imaging System (DTIS) since 2006 have been re-analysed for occurrences of litter, with emphasis on marine litter. From 169 000 DTIS records around New Zealand, 149 were of marine litter. Each occurrence was located in the original imagery and classified following the United Nation Environment Programme (UNEP) guidelines on remotely observed marine litter. Only a small proportion of the seafloor in the New Zealand Exclusive Economic Zone has been surveyed photographically, leaving large data gaps and uncertainties

around litter density in un-surveyed areas. However, highest litter densities in the DTIS data were recorded along the northern shelf of Northland, Bay of Plenty, East Cape, Chatham Rise, and off the coast of Dunedin, with litter densities of more than 0.4 pieces of litter per km of video transect (~133–430 pieces per km²). Litter densities in these regions were at the lower end of the reported spectrum from other studies outside New Zealand (e.g., Mediterranean and North Sea). Results show most litter was detected within 25 km of the coast, but litter was also recorded on remote seamounts more than 1500 km away from the coast. Most (83%) of the litter can be directly linked to fishing and boating activities, according to the UNEP codes, with pieces of rope being the most common recorded item (77%). Fishing nets accounted for 1% of all samples. To improve understanding of seafloor litter distributions, it is recommended that recording protocols for seabed photographic surveys be updated to incorporate the UNEP categories for marine litter.

Session B: Retracing the origins of floating plastics collected in the North Pacific subtropical gyre.

Laurent Lebreton, Dr Matthias Egger, Dr Sarah-Jeanne Royer



The subtropical oceanic gyre in the North Pacific Ocean is currently covered with tens of thousands of tonnes of floating debris principally made of plastic and dispersed over millions of square kilometers. In 2019, an oceanographic mission was conducted by The Ocean Cleanup to test a recovery system, and during which over four tonnes of floating ocean plastics were retrieved. This debris was later sorted, counted, weighted and analysed for evidence of origin and age. Our results, complemented with results from previous expeditions and Lagrangian dispersal simulations for several source scenarios, revealed new insights into the formation of the infamous Great Pacific Garbage Patch.

Session C: Back to the future: making reuse part of the package for curbing plastics

Hannah Blumhardt



Reusable packaging systems used to be normal for all types of everyday essentials - from milk to groceries. Today, faced with a never-ending deluge of plastic packaging waste, New Zealand's Government has expressed an interest in more reuse and refill systems to help curb this plastic tsunami. But, what does Government need to do, and who do they need to work with, to make this reuse vision a reality? Drawing on examples from New Zealand and overseas, and a growing body of international research, this presentation will provide an introduction to reusable packaging, its potential benefits for reducing plastic usage and plastic pollution, the barriers and opportunities to its widespread adoption in New Zealand, and some examples of what the government could do to secure a return to reuse.

Session C: The road to a binding global plastic pollution treaty.

Dr Trisia Farrelly



There are numerous processes underway to build momentum towards an ambitious global plastics agreement at the United Nations Environment Assembly (UNEA) 5.2 in February 2022. This presentation will tell the story from a troubled start in 2017 to now seeing over 140 countries declaring support for a global agreement to combat plastic pollution. Trisia will tell the story from the perspective of her work in the United Nations Expert Group on Marine Litter and Microplastics since 2017, and the United Nations Scientific Advisory Committee, Marine Litter and Microplastics since 2019 where she has seen numerous changes in the deployment of terminology over the years driven by civil

society alongside emerging scientific discoveries in this field. The language deployed by civil society has shifted the narrative and increased the levels of ambition from UN member states and major groups. For example, we have seen a shift from a narrow focus on 'marine litter' to 'marine litter and microplastics' and more recently 'plastics pollution' as a much broader category; from 'waste management' to waste 'prevention', 'elimination' and 'polluter pays'/'producer responsibility'. The change in language has increased the scope to the 'full life cycle' of plastics; a new focus on 'human health' and 'the precautionary approach'; 'climate change' impacts including a spotlight on fossil fuel subsidies. Most recently, the narrative has centered on 'human rights', 'Indigenous rights', 'worker rights', and 'waste colonialism' – an exciting and radical shift from the reductive 'marine litter' discourse of 2017, to a narrative that is significantly more complex, inclusive, political, and inter-relational.

Session C: Using science to inform business decisions and promote behavior change.

Helen Townsend



To solve the plastic pollution problem there needs to be practical solutions that are carried out by all sectors of society including businesses and it's vitally important that these solutions are grounded in scientific research. In this talk I will give examples of how Anthea Madill and I base our business decisions on current research and use this as means to inform product design, communicate science and conservation and promote behaviour change. Anthea and I have been working in sustainable business for a decade with our businesses The Rubbish Whisperer, Remix Plastic and EcoSplat Reusable Water Balloons and all our products are designed to reduce plastic pollution and promote a more circular economy.

Session D: Creative Responses to Plastic Pollution.

Lorella Doherty



Using my most recent example of 100 Days Of Beach Cleans kaupapa; and drawing on my experience in plastic pollution in Taranaki and Aotearoa through beach cleans over the past 7 years. And turning that plastic into artwork with the purpose of educating and creating change in peoples individual behavior around plastic pollution. The talk will largely be based around the important role that art has in drawing people to the issue through beauty and their emotions, how this can be an important tool for drawing attention to the issue instigating change.

Session D: The perils of pre-production plastic pellets – a community perspective.

Emma Hunter, Raquelle de Vine, Dr Olga Pantos, Dr Phil Clunies-Ross, Fraser Doake, Hayden Masterton, Dr Rob Briers



In 2020, Algalita South Pacific supported MSc student Emma Hunter in her research project "Quantification and characterisation of pre-production plastic pellet pollution in the Avon-Heathcote Estuary/Te Ihutai". This research linked to a study Algalita South Pacific embarked on in 2018 that focused on identifying "hot-spots" plastic/microplastic pollution around the Te Whanga-nui-a-Tara Wellington Harbour. Here Emma discusses the rationale and findings of her research project, the status of the Wellington study and the importance of community involvement and engagement in raising awareness of the microplastics issue.

Session D: Litter Intelligence: Citizen science at the forefront inspiring positive actions and solutions to the litter problem in Aotearoa.

Camden Howitt, Ben Knight, Shawn Elise Tierney, Becky Taylor and Carla Fonseca
Paris



Litter poses a major risk to the people, culture, environment and economy of Aotearoa. To address the litter problem, Sustainable Coastlines, through "Litter Intelligence" the first and only national litter monitoring programme, enables hapu, schools and community groups, to collect marine litter data from their local beaches, gain insights and take action to prevent litter. Success stories are captured on the Litter Intelligence Action platform. Years 3 and 4 students from Waiheke's Te Huruhi School wanted to reuse the "compostable" coffee cups that were prominent on their local beach to plant seeds in their garden. However the cups were PLA-lined needing to be sent to a commercial-composting facility to break down. Students saw this as an opportunity to learn how to write persuasive letters: to the Gulf News to highlight the problem; to the compostable cup company asking to clarify their marketing, and to Keep Cup asking for a discount which they provided. Taranaki Conservationists and Litter Intelligence collectors found the local source of the plastic foam window separators that were reaching their local beaches through the stormwater drain. After notifying the Kiwi company about the issue, the company made the change from plastic to cork, an alternative made from renewable resources that break down faster. These are some of the examples of how citizen science can create positive change. Citizen science involves a wide range of people and empowers local as well as collective action. Behavior change, pro-environmental messaging and improvements to policy, or infrastructure is achievable across broad spectrums of society by many inspired individuals using data to inform action.

