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**Te Wai Whau:  
A Kaupapa Māori citizen science  
approach to plastics pollution**

A thesis presented in partial fulfilment of the requirements for the degree of

**Master of Arts  
in  
Social Anthropology**

at Te Kunenga ki Pūrehuroa, Te Ika-a-Maui, Aotearoa  
(Massey University, New Zealand)

**Matt Peryman  
2022**

Tēnā koutou e te Whānau.

Ko Putauaki tōku Maunga  
Ko Rangitaiki tōku Awa  
Ko Mataatua tōku Waka  
Ko Uiraroa tōku Marae  
Ko Ngāti Awa tōku Iwi  
Ko Ngāi Tamawera tōku Hapū  
Ko Matt Peryman ahau.

Nō reira, tēnā tatou katoa.

*Welcome to you all,  
family and friends.*

*Putauaki is my Mountain  
Rangitaiki is my River  
Mataatua is my Waka  
Uiraroa is my Marae  
Ngāti Awa is my Iwi  
Ngāi Tamawera is my Hapū  
I am Matt Peryman.*

*Greetings to all.*

## HE MIHI - ACKNOWLEDGEMENTS

This thesis is dedicated to Te Wai Whau and the diverse communities that the Whau has raised throughout the Awa's lifetime. I also dedicate this research to Indigenous Peoples the world-over, who despite everything continue to stand up for our Taiao. I am inspired by you all. Kia kaha.

My kaiāwhina (research collaborators), whose warmth, knowledge, and enthusiasm made this study what it is – thank you all so, so much. To Robin Taua-Gordon and Te Kawerau ā Maki, thank you for your support and for allowing us to do this research alongside you and your Awa. Pamela Gill, Carla Gee, Hollie Russell, Te Kaurinui Parata, Juressa Lee, and everyone who came down to the Whau with us, you're all legends. Thank you. Aroha nui.

Associate Professor Trisia Farrelly and Tina Ngata, my two extraordinary supervisors, thank you both for your invaluable time, patience, energy, and tautoko from the very beginning. Virginia Baker, Dr. Mat Walton, Dr. Olga Pantos, and Dr. Grant Northcott, thank you for your mahi, for giving me a chance with this research, and for providing such a positive support network for this excitable if inexperienced kid.

Lastly, I thank my beautiful whānau and friends for everything they do for me, for each other, and for our world. This is your story as much as it is mine. You have all my love.

# TUHINGA WHAKARĀPOPOTO - ABSTRACT

This ethnographic methodology-focused thesis explores the potential value of Kaupapa Māori citizen science for community-based research on plastics pollution at Te Wai Whau, Tāmaki Makaurau, Aotearoa (the Whau River, Auckland, New Zealand). Through the application and interpolation of both Kaupapa Māori (Māori ways of being/doing) and anthropological concepts and methodologies, this project aims to explore how citizen science may help Aotearoa address plastics pollution in a holistic, relational, integrated, and decolonial manner. Applying Kaupapa Māori to this anthropological project also serves to focus this study on collaborating with the Whau community on a culturally grounded and power-sharing basis to actively prevent further plastics pollution at the Whau. Methods used include semi-structured interviews, online engagement, and a Kaupapa Māori adaptation of Break Free From Plastic's brand auditing methodology, each of which serve to build local knowledge and awareness of the global plastics crisis while exploring opportunities for systemic change.

With many NZ brands identified as polluters at the Whau, this study emphasised how the normalisation and overproduction of plastics has resulted in plastics pollution in the Whau and Aotearoa more broadly. The study found that actively collaborating with the Whau community to incorporate Te Ao Māori (the Māori world) into this research enhances the socio-cultural and political value of the research for our research community. This study's local focus necessitates a critical analysis of the wider national and international contexts of plastics pollution, including how the legacies of European imperialism and capitalism have perpetuated today's socio-ecological challenges such as plastics pollution, climate change, and biodiversity loss. This study also explores the potential value of further decolonising anthropology through the critique of dominant power structures and connecting research with socio-political action in response to the systemic causes of plastics pollution.

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# HE TĪMATANGA - INTRODUCTION

\* \* \*

Kia ora tātou and welcome.

The road to this thesis has been a long and winding one, led by a strong sense of hope for the future of our world. Firstly, I must acknowledge the privilege it has been to do this research, to be so well supported by those I have worked alongside, and to be given the opportunities that I have had. I stand on the shoulders of many, many giants who started this mahi well before my time. Kia ora rawa atu e te whānau.

My name is Matt Peryman (Ngāti Awa), a social anthropology student from Massey University. My tūpuna Māori (Māori ancestors) first arrived in Aotearoa<sup>1</sup> on the waka (canoe) Mataatua, about 700-800 years ago (Te Runanga o Ngati Awa, 2020). I whakapapa (genealogically relate) to a small town called Te Teko in Te Moana-a-Toi (the Bay of Plenty), where my Nan was born and raised on our marae Uiraroa. On my Pākehā (non-Māori settler) side, I have primarily English and German ancestry, with my European ancestors arriving in Aotearoa via ship in the 1800s. While both sides of my family have moved around the motu (country) a lot over the years, both lineages had settled in Tāmaki Makaurau (Auckland) by the 1970s, when my parents first met.

My brother and I had a safe and privileged childhood in the rural outskirts of Tāmaki, surrounded by native birdsong, lush rolling hills, towering native trees, and a plethora of animal friends. Growing up in that space, it was impossible not to grow a deep and lasting relationship with our Taiao (interconnected natural-spiritual world). After high school when I was thinking about going to university, my natural inclinations soon had me enrolled in biology and zoology, with the hope of eventually working in conservation. Quite quickly I realised that those subjects were not for me, but I was still set on studying human relationships with the natural world. This led me to change my major to social anthropology and I have never looked back.

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<sup>1</sup> The names ‘Aotearoa’ and ‘New Zealand’ (NZ) are often used interchangeably. In this thesis, I primarily use ‘Aotearoa’, although there are occasional instances in which ‘New Zealand’ (or ‘NZ’) is used to specifically refer to the political entity of ‘New Zealand’ and its social, political, and economic systems.

## Research journey and context

My research journey began in mid-2020 when it felt like the world was on fire. It was still the early days of the COVID-19 pandemic, I had just returned home from two years working in Vancouver, Canada (Skwxwú7mesh, x<sup>w</sup>məθk<sup>w</sup>əyəm, and səlilwətał territories), the #BlackLivesMatter movement was in full swing, and climate change, biodiversity loss, and the ubiquity of toxic pollution was at the forefront of my mind. With so many complex and interconnected kaupapa (topics) to focus on, I was struggling to decide where to focus my upcoming master's research. I contacted Associate Professor Trisia Farrelly, one of the lecturers from my undergraduate studies, as I knew her research focussed on socio-ecological issues, and I was in need of some guidance on where best to invest my time and energy.

To my initial surprise, Trisia told me that plastics<sup>2</sup> pollution was one of the most pressing issues facing our world today. As a distinctly anthropogenic problem, it was a perfect kaupapa for an anthropology student like me to focus on. Trisia described the complexities involved with the full life span of plastics, from the extraction of fossil fuels through to production and pollution. She explained to me that plastics do not biodegrade but rather break apart into particles smaller than a pinhead called micro- and nano-plastics that are now quite literally everywhere. They threaten the health of all life on Earth, and yet the global rate of plastics production continues to increase exponentially. This was a subject with serious biological, cultural, social, political, economic, and intergenerational implications, and it caught my interest immediately.

Trisia organised a hui (meeting) with Drs. Olga Pantos (Institute of Environmental Science and Research [ESR]) and Grant Northcott (Northcott Research Consultants Limited), the co-coordinators of the Aotearoa Impacts and Mitigation of Microplastics (AIM2) research programme. AIM2 is an interdisciplinary study funded by the New Zealand Ministry of Business, Innovation and Employment and involves many researchers across the country with the goal of understanding the impacts of microplastics in Aotearoa and potential pathways to end plastics pollution. Grant and Olga soon adopted me into the AIM2 research whānau (family) and provided a scholarship for this project (ngā mihi NUI!). Concurrently, Trisia and I began planning for a pre-master's research project over the summer of 2020-2021, investigating how plastics pollution as a form of waste colonialism<sup>3</sup> resonates with waste and pollution experts throughout Aotearoa.

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<sup>2</sup> The pluralisation of 'plastics' in this thesis is intentional as it draws attention to the fact that plastics are not homogenous but materially diverse. As different plastics contain a variety of material types and chemical compounds, they have different implications for socio-ecological health as well as varying levels of recyclability.

<sup>3</sup> Internationally, 'waste colonialism' most often describes the often-imbalanced power dynamics involved with the transboundary movement of waste and pollution.

Our research team was primarily supervised by Trisia and included my research partner Romilly Cumming (kia ora!) and our three other supervisors, Tina Ngata and Drs. Sascha Fuller and Stephanie Borrelle. This was the first time I met the extraordinary Tina Ngata (Ngāti Porou). As an expert researcher on Indigenous scholarship, plastics pollution, and waste colonialism, Tina provided invaluable supervision over both the summer project and my master's research. She helped me understand how capitalism was developed through European colonialism, and how as an economic system capitalism perpetuates wastefulness and ecological destruction such as plastics pollution. Tina's supervision and insights have been instrumental in developing my methodology for this research, as well as my own identity and worldview, for which I am forever grateful. Ngā mihi nui whaea.

### **Te Wai Whau and plastics pollution**

The primary research site for this project is Te Wai Whau, also known as the Whau Awa/River:

**Figure 1**

*Te Wai Whau (foreground), with Tāmaki Makaurau in the Background (Capper, 2006).*



For generations, the Whau has been cared for by Te Kawerau ā Maki, the local mana whenua who are based in Waitakere. Te Kawerau ā Maki have taught us that, like all Awa, the Whau is a living, breathing being with personhood and mauri of its own. Ever since Māori first settled in the

Tāmaki area, the Whau has been a central aspect of countless people's lives. The Whau is one of the closest water links between the Waitematā and Manukau harbours on the northern and southern sides of the city. This made the Awa a particularly critical route for Māori who would use the Awa to trade and communicate between the various communities in what is now Auckland. The well-known Portage Road was established on the route that Māori previously used to carry waka (canoes) from one harbour to the other (Waitakere City Council, 2001).

The human communities that have grown alongside the Whau are vibrant and passionate about the Whau's right to not only survive but to thrive. However, due to its central location in what has become Aotearoa's largest city, the Whau has been subjected to many years of residential and industrial development that has impacted upon the Awa's health and mauri (Manning, 2019). This has made the Whau one of the most heavily polluted Awa in Aotearoa today (ibid.). This processes of industrialisation and urbanisation have led to a consistent inflow of plastics and other (often toxic) waste into the Whau (Manning, 2019; Waitakere City Council, 2001). This is one of the reasons that it was chosen as one of the AIM2 programme's main research settings, and thus the focus of this research.

While many communities and organisations are closely involved in caring for the Whau, the continued pollution of the Awa can seem endless, as pollution often re-emerges soon after an area is cleaned up. This is particularly disheartening in the knowledge that plastics production, consumption, and pollution continues to accelerate without proactive governmental regulation. This is a serious problem, as the following whakataukī (Māori proverb) illustrates:

*Ka ora te Whenua, ka ora te Wai, ka ora te Tāngata.  
If the Land is well, and the Water is well, the People will thrive.*

The health of our Taiao directly correlates to the health of our people. If we care for our Taiao, we care for ourselves. However, when our Taiao becomes polluted, as is the case for 95-99% of Awa in Aotearoa today (New Zealand Ministry for the Environment & Stats NZ, 2020), our bodies become polluted as well. Despite their socio-ecological, cultural, recreational, and economic importance, the many Awa in Aotearoa suffer from high levels of pollution that has resulted in 76% of native freshwater fish species becoming threatened or at-risk (Stats NZ, 2021). Similarly, the NZ government recommends against swimming in 94% of urban rivers due to the health risks associated with water contamination from toxic pollution (New Zealand Ministry for the Environment, 2020). Plastics polluted in water systems also pose a biosecurity risk, as pathogens and invasive species can attach to and raft on (often microscopic) sized plastic fragments to

traverse biological, territorial, and jurisdictional boundaries (Audr ezet et al., 2021). As more of our freshwater systems become contaminated, collecting kai from them is increasingly discouraged, which impinges upon mahinga kai (customary M ori food gathering systems), food security, safety, and sovereignty (New Zealand Ministry for the Environment, 2020).

It is still too early to know the full global impact of plastics pollution. Microplastics are constantly ejected into the global hydrological cycle through processes such as the breakdown of macroplastics, the wear-and-tear of vehicle tyres, and the washing of polymer-based clothing (Arias et al., 2022), where they become much more difficult to retrieve (Cole et al., 2011). Plastics' toxic chemical additives continue to leach into human and non-human bodies the world over, disrupting hormonal and reproductive cycles, causing cancer (DeMatteo et al., 2012) and obesity (Manikkam et al., 2013). Plastics' toxic chemical additives have been found in every human and non-human body tested so far (Bergman et al., 2013). Plastics are in our food, air, and even in placentas (Ragusa et al., 2021). In Aotearoa, plastics pollution disproportionately affects already vulnerable lower socio-economic communities, including M ori, Pasifika, and coastal communities, reinforcing racist and classist social hierarchies that sustain colonial violence and white supremacy (Liboiron & Ngata, 2020).

As my focus on plastics pollution solidified, my awareness of the problem became more and more pronounced. I started seeing plastics everywhere. I noticed that often they were used unnecessarily, and almost always without any apparent consideration for their extensive longevity and their inevitable ecological implications throughout their lifetimes. I have since found plastics polluted throughout the country from Kapowairua at the northern tip of Te Ika-a-M ui (the North Island) to Piopiotahi (Milford Sound) at the southwestern edge of Te Waipounamu (the South Island), and everywhere in between:

**Figure 2**

*Partially Deconstructed Plastic Toy Car at  
Kapowairua (Spirits Bay). April 2021.*



**Figure 3**

*Plastic Waste at Piopiotahi (Milford Sound).  
December 2020.*



**Figure 4**

*Plastic Bottle Cap-Turned-Shellfish Home at  
Mount Maunganui, March 2020.*



**Figure 5**

*Plastic Bottle Found Outside my Marae at Te Teko,  
Te Ika-a-Māui. May 2022.*



## **Bridging Kaupapa Māori and social anthropology**

This is a Kaupapa Māori anthropological thesis, which means that the entire project is situated within a culturally specific research framework that reflects both my tūrangawaewae (place of standing) and whakapapa (genealogy), as well as the cultural context of my primary research site, Te Wai Whau. Kaupapa Māori research is not only about generating useful knowledge; it is also about using this knowledge to inform critical decisions around the protection of our Taiao. This approach also responds to the colonisation of plastics pollution science, which is fundamental to the process of waste colonialism and can hinder effective action. The decolonisation of plastics pollution science (in this case, the development of a Kaupapa Māori citizen science methodology) thus supports the dismantling of dominant and harmful assumptions and practices embedded in Western/dominant<sup>4</sup> science.

As a social science, the discipline of social anthropology was first developed as a method of knowing and classifying usually non-European human subjects, reinforcing notions of white supremacy that still exist in the discipline today (Beliso-De Jesús & Pierre, 2019). This legacy has resulted in an understandable distrust of anthropology and anthropologists that is shared by many Indigenous Peoples around the world (L. T. Smith, 1999). In response, many Indigenous (e.g. George, 2018) and non-Indigenous anthropologists (e.g. Kennemore & Postero, 2020) have been working to re-evaluate how anthropologists relate to Indigenous communities, sciences, ontologies, and methodologies through research.

Unlike some dominant epistemological traditions, Kaupapa Māori research is necessarily focussed on achieving beneficial outcomes for the communities involved in research (Kerr et al., 2010). This is part of the reciprocal relationality central to Te Ao Māori: we cannot take (data, knowledge, information) without also giving back in meaningful ways (“it can’t be all hui and no do-i”). Western anthropologists have often struggled with providing such reciprocation, sometimes even causing more harm than good for their research communities (L. T. Smith, 1999). This said, many anthropologists have been working to decolonise anthropological research to avoid perpetuating the colonial legacy of the discipline (Uddin, 2018). Similarly, genuinely collaborative engagement with local and Indigenous communities in public/action/engaged anthropology (Blair, 2019) can lead to positive socio-ecological outcomes for research communities (ibid.). Collaborating with research communities openly and equitably may help anthropologists work in ways that uplift the mana of both researcher and research community,

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<sup>4</sup> Considering the relationship between Western/European science and the perpetuation of European imperialism and Indigenous oppression, I follow Liboiron (2021) in referring to this form of science as ‘dominant science’, as this term “keeps the power relations front and centre” (p. 20).

while focusing on motivating collective action and relevant systemic change. For instance, the holistic perspective and close relational practice of both anthropology and Kaupapa Māori brand auditing, could elicit important insights of how citizen scientists relate to the kaupapa of plastics pollution mitigation and systemic change.

Kaupapa Māori is more than a culturally specific methodological approach, however: it is a way of being in the world that reflects Māori values and ontological notions (Mahuika, 2008; G. H. Smith, 2000). Kaupapa Māori has been described as a collective vision that aims to empower Māori people, language, worldviews, and futures. Kaupapa Māori was developed as a research framework<sup>5</sup> in response to the academic imperialism experienced by many Māori since Europeans arrived in Aotearoa. Due to the harm caused by the traditionally extractive and impersonal methodologies used by dominant scientists, a new methodological framework was required to provide a culturally appropriate basis for being and engaging with Māori in research (Rangahau, n.d.). Contrary to the common belief in dominant science that knowledge production should be apolitical and can be acultural, Kaupapa Māori, as with all sciences and knowledge systems (whether consciously or otherwise), is openly grounded within cultural frameworks and epistemologies” (Pihama et al., 2015, p. 6).

Kaupapa Māori is grounded within Te Ao Māori (the Māori world/view) and integrates Māori values and mātauranga (knowledge) into its inquiry paradigm (L. T. Smith, 1999; Rangahau, n.d.). In research, Kaupapa Māori practitioners follow the local tikanga set by those with the mana whenua (authority/custodianship) of a particular research site and recognise the whakapapa of each site and community. In cross-cultural contexts, Kaupapa Māori research aligns with the reciprocal, power-sharing values and mutual sense of responsibility expressed in Te Tiriti o Waitangi (Rangahau, n.d.). Rangatiratanga (self-determination/autonomy) is a core element of Kaupapa Māori research that ensures that the mauri (essential life-force) and mana (spiritual power) of everyone involved in the project is respected and maintained. Tino rangatiratanga (total self-determination) and humankind’s collective liberation from oppressive systems is the overall collective aim of Kaupapa Māori (Rangahau, n.d.).

My use of Te Reo Māori (the Māori language) throughout this research and thesis<sup>6</sup> is deliberate as it helps to normalise and create safe spaces for Māori in a world that is not always friendly and

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<sup>5</sup> Some of the key figures in the development of Kaupapa Māori include Drs. Graham Hingangaroa Smith (Ngāti Porou, Ngāi Tahu, Ngāti Apa, Ngāti Kahungunu), Linda Tuhiwai Smith (Ngāti Awa, Ngāti Porou), Leonie Pihama (Te Ātiawa, Ngāti Māhanga, Ngā Māhanga a Tairi), Taina Pohatu (Ngāti Porou), and Russell Bishop (Tainui, Ngāti Pukeko), among many others.

<sup>6</sup> In this thesis, Te Reo Māori words are defined in brackets upon their first use, though it is important to remember that these words often have different meanings in different contexts. There is also a Te Reo Māori glossary appended to this thesis (Appendix 1) for reference.

receptive to us and our language. This use of Te Reo Māori also serves as a visual and aural reminder of the whakapapa of the Whenua (Land) on which we stand and is valuable for demonstrating Māori-specific ways of understanding events and phenomena. For instance, Associate Professor Hone Morris (Te Kunenga ki Pūrehuroa) referred to plastics as 'kiri' and introduced the notion of plastics as 'the new skin [kiri] of the world' in a 2020 Ka Awatea seminar at Te Kunenga ki Pūrehuroa. Morris further elaborated on the concept in kōrero with Trisia and a colleague following the seminar (pers. comms, 14 December 2020). Morris' conception of plastics as the world's new 'skin' draws attention to the now-ubiquitous presence of plastics pollution across our planet.

Finding my tūrangawaewae in the discourses around Kaupapa Māori plastics pollution research has at times been difficult. I have struggled with my positionality as a colonised anthropology student, who has both Māori and Pākehā ancestry. I try to honour both sides of my whakapapa while remaining conscious of how my thoughts and actions may perpetuate oppressive and harmful ideologies. I have the privilege of being relatively white passing, which means that to most people I look like a white person. That means that I do not have to deal with as much direct and overt racism as some of my whānau (family) and friends. Witnessing (and to a lesser extent, experiencing) racism and other forms of prejudice throughout my life has helped me understand the inequalities present throughout our society. Taking a Kaupapa Māori approach to this research therefore felt like a natural fit, and I would (and could) not have done this research in any other way<sup>7</sup>.

### *Anticolonial science and Kaupapa Māori*

This ethnography is also an example of anticolonial action research (research focused on transformative change). Anticolonial science aims to interrogate and dismantle the colonial ideologies and power structures that uphold dominant science and its influence over society and politics (CLEAR, 2017; 2019). While dominant science generally positions itself as a universally authoritative, objective, and neutral benefactor for society, anticolonial and Kaupapa Māori citizen science is inherently localised, community-based, and involve culturally specific methodologies (Liboiron, 2021; L. T. Smith, 1999). By offering an alternative approach to the colonial notions that underpin much of dominant scientific research, anticolonial researchers actively diverge from the traditionally reductionist, patriarchal, exclusive, extractive, and impersonal characteristics of dominant scientific inquiry (Liboiron, 2021). Anticolonial

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<sup>7</sup> For more on Kaupapa Māori research methodologies see: <http://www.rangahau.co.nz/rangahau/179/>. Linda Tuhiwai Smith's *Decolonizing Methodologies* (1999) is a foundational text here, particularly its third edition released in 2021.

researchers also actively create space for Indigenous knowledge, voices, and worldviews in their research (Borrelle, Provencher, & Ngata, 2021). By recognising the complex whakapapa of our research settings (CLEAR, 2019; Liboiron, 2021), anticolonial researchers can understand the importance of local Indigenous knowledge for addressing socio-ecological problems like plastics pollution.

Mahuika (2008) discussed how Kaupapa Māori shares many commonalities with anticolonial science, stating that “in its assertion of Māori cultural aspirations, values and beliefs, kaupapa Māori continues to work both against and beyond the struggles and strife created as a consequence of colonization” (p. 11). Seeing as plastics pollution and colonialism are closely intertwined, I argue that this is one area in which these two approaches enhance one another. Situating this study as a form of anticolonial Kaupapa Māori citizen science serves to decolonise plastics pollution science, while recentring Māori philosophies, cosmologies, theories, and methodologies in addressing plastics pollution at Te Wai Whau.

*A note on the use of capitalisation in this thesis*

Potawatomi botanist Robin Wall Kimmerer first introduced the practice of capitalising the names of animals and plants in her monumental text *Braiding Sweetgrass* (2013). This was an intentional critique of the usually exclusive use of capitalisation to denote proper nouns in the English language, which “conveys a certain distinction, the elevated position of humans and their creations in the hierarchy of beings... [and the belief in] human exceptionalism” (Kimmerer, 2013, p. 385). Around the same time, Styres and Zinga (2013, as cited in Liboiron, 2021) began capitalising the word ‘Land’, in the understanding that “Land [to Indigenous people] is a spiritually infused place grounded in interconnected and interdependent relationships” (p. 6). This spotlights how the idea of a separate-from-human understanding of ‘nature’ is not “universal or common, but unique to a specific worldview that came about at a particular time for specific reasons” (ibid. p. 7).

These developments have had immense implications for both anthropological and Indigenous scientific practice and have influenced the work of many subsequent anthropologists and researchers. In this thesis, I choose to capitalise the names of those beings that, in Te Ao Māori and many other Indigenous ontologies, have mauri (life force) and personhood of their own. These include: Taiao (the interconnected natural system in which we exist), Maunga (Mountain/s), Awa (River/s), and Moana (Ocean/s). Capitalising the names of these beings also highlights the inseparable kinship relations that Māori and other Indigenous Peoples have with

them. This is reflected both in pepeha<sup>8</sup> and in the non-traditional structure of this thesis. While common threads are woven throughout this methodology-focused thesis, it is sectioned into three parts, including: 'I. From the Maunga' (literature review), 'II. To the Awa' (methodology), and 'III. To the Moana' (discussion). This reflects the cultural importance of these beings for Māori, providing a format for presenting this research that incorporates Māori symbolism, while reflecting our genealogical relationships with our interconnected Taiao.

### **The potential of citizen science for addressing plastics pollution**

As dominant academic, corporate, and governmental institutions have not effectively prevented the continued pollution of plastics, much of the action-focused research on plastics pollution has been conducted by citizen scientists. In non-Indigenous scientific contexts<sup>9</sup>, citizen science is a relatively new form of scientific inquiry that involves community members in the research process. Citizen science initiatives usually take place outside of dominant scientific institutions and are thus well-positioned to use research to discuss and address complex socio-political issues, such as plastics pollution (Zettler et al., 2016). Over the past several decades, citizen science projects have become more common with increasing socio-political influence, as dominant science has at times proved ineffective in motivating action against socio-ecological challenges like plastics pollution (Jeevendrampillai & Conquest, 2021).

Throughout the world, citizen scientists have been responding to the continued inaction of dominant institutions such as governing bodies and industrial sectors to effectively address plastics pollution by identifying which corporations are creating the single-use plastics that are polluting our Taiao, in a process known as brand auditing. The environmental non-governmental organisation (ENGO) Break Free From Plastic (BFFP) have led the charge against the world's top plastics polluters by designing an open-access data collection brand audit methodology that anyone, degree, or no degree, can use to identify the top polluting companies in their local environs (BFFP, 2021).

### **BFFP's brand audit process**

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<sup>8</sup> Pepeha are a way of introducing oneself in Te Ao Māori that involves the sharing of genealogy, including the Maunga and Awa one descends from. See page ii for my pepeha at the beginning of this thesis.

<sup>9</sup> As Kaupapa Māori research recognises the necessary link between research and civic action, Kaupapa Māori research has arguably always involved citizen science methodologies.

Adapting BFFP's brand audit methodology for the Whau context is the core aim of this project. As a form of citizen science, brand audits involve volunteers from a community coming together to collect data that identifies which brands are responsible for creating the plastics polluting a particular area, such as an Awa or Beach (BFFP, 2022a). In a typical brand audit, citizen scientists begin by collecting as many brand-labelled plastic items as possible from their chosen sample site. These plastics are then counted and categorised based on the brand present on their label to build a database that quantifies which corporations are creating the plastics polluting our Taiao. Brand audits are notable for their ability to link research with political action, as brand auditors usually use the critical information collected to call for the effective regulation around how plastics are produced, consumed, and managed in packaging and other plastics-intensive industries. Importantly, brand auditing can also influence legislation, as exemplified by the Break Free From Plastic Pollution Act proposed by BFFP and their allies to the US congress in 2021 (Snyder, 2021).

As BFFP's brand audit methodology is publicly available, free to engage with, and accessible to citizen scientists with varying levels of privilege, it is a relatively democratic research method. However, within the brand audit community there has been a notable lack of Indigenous engagement and representation. Brand audits are often conducted in Indigenous spaces, but there is little literature available that discusses how Indigenous Peoples have been involved in or collaborated with through brand audits. This is alarming considering the often-problematic experiences of Indigenous Peoples when dominant scientists and sciences have been imposed upon them throughout history (L. T. Smith, 1999; Liboiron, 2021). In response to this gap, the research aimed to develop a locally contextualised Kaupapa Māori brand audit methodology that works towards the Whau community's goal of holistically mitigating plastics pollution.

### **Aim and objectives**

This research aims to explore the potential value of co-creating a Kaupapa Māori brand audit methodology alongside the Whau community that may lead to broader (economic, political, cultural, relational, socio-ecological) systemic changes that address plastics pollution in a holistic, relational, integrated, and intergenerational manner reflective of Te Ao Māori.

As Kaupapa Māori research focuses on achieving beneficial outcomes for our research communities, this project had two main objectives, including: collaborating with the Whau community to co-create a Kaupapa Māori brand audit methodology that identifies polluting brands at the Whau to help address the community's goal of holistically mitigating plastics pollution in the Whau; and exploring the potential value of a Kaupapa Māori approach to plastics

pollution citizen science that equitably and holistically investigates the socio-ecological, cultural, political, and spiritual implications of plastics pollution at Te Wai Whau.

# I. FROM THE MAUNGA

\* \* \*

To begin any research journey, we must first ascend the Maunga. From here we review the literature to build our understanding of those who have come before us in this work, grow our knowledge of the kaupapa we plan to investigate, and establish our positionalities as researchers.

The literature review provided critical insight into the global context of plastics throughout their full life spans and how we, as anthropologists, kaitiaki, and as citizens, can respond effectively and appropriately. Key search terms included: 'Kaupapa Māori', 'plastic(s) pollution', 'citizen science', 'Indigenous science/research', 'waste colonialism', 'corporate imperialism', 'kaitiakitanga', and related combinations and synonyms. Kaupapa Māori incorporates intersectional, holistic, community-based, and interdisciplinary approaches to socio-ecological challenges (L. T. Smith, 1999; Mane, 2009) such as plastics pollution. To ensure that my understanding of plastics pollution and Kaupapa Māori citizen science remained grounded in local indigeneity, I extended my search to include blog writing, discussions on social media, and other 'grey' forms of literature. This also accounts for the legacies of Indigenous exclusion present in academic literature, thus providing critical socio-political context that the academic literature could not. This includes how the Whau community think about, relate to, and act upon plastics pollution in their waterways, as well as how plastics pollution relates to the wider objectives of Kaupapa Māori.

## 1. Whakapapa of plastics pollution

### Introduction

In both Kaupapa Māori and anthropological research, it is important to take a holistic approach to understand the wider context, or whakapapa<sup>10</sup>, of our chosen research topics (L. T. Smith, 2015). This chapter on the whakapapa of plastics pollution builds an understanding of the relationships and interactions present throughout the full life span of plastics across space and

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<sup>10</sup> Whakapapa as a conceptual tool helps us to examine a subject's positionality and relationships within its wider spatial and temporal contexts.

time. This includes the extraction of fossil fuels (the base product of most plastic polymers and products); the manufacturing of plastic polymers and plastic products, including the addition of chemical additives; the transport of plastics to retailers and onto consumers; then into waste management facilities, or our Taiao, including organic bodies such as ours. This is a process that can potentially repeat many times over as fossil fuel-based plastics do not biodegrade and can travel through food webs (Carbery et al., 2018).

This holistic approach to plastics pollution sheds light on intergenerational impacts while highlighting the perpetuation of unnecessary<sup>11</sup>, toxic, disposable, and hard-to-recycle plastics production by dominant social, political, and economic systems. Accordingly, this chapter discusses how European imperialism and its underlying ideological assumptions led to the global plastics pollution crisis, as well as other socio-ecological challenges such as biodiversity loss and climate change. The literature review analyses the contentious power relations between corporations, governments, scientists, researchers, Indigenous Peoples, and concerned everyday citizens in relation to the complexities of addressing plastics pollution through research, policy, and civic action. This serves to inform the development of our Kaupapa Māori citizen science methodology and our focus on addressing the structural causes of plastics pollution.

### **Genealogy of plastics**

Most plastics are the processed and manufactured descendants of the countless organisms that lived, died, and fossilised to create the base material of most plastics: fossil fuels. Māori, like many other Indigenous Peoples, understand all matter as interrelated and inherently possessive of mauri and mana (Henare, 2001). This means that humans, plastics, and all other things share genealogical relationships with each other (Rangahau, n.d.). In Te Ao Māori, this is an all-encompassing cosmological assumption that was institutionally suppressed through colonial processes of assimilation and cultural genocide (Ngawhare, 2019, pp. 11-12). Understanding human relationships with plastics highlights how dominant systems allow plastics to escape into our Taiao and cause harm through pollution and contamination. This is encapsulated in the kupu (word) for 'plastic' in Te Reo Māori, 'kirihoū', which as aforementioned translates as [the] 'new skin' [of the world]. For Indigenous plastics researchers like me, reconnecting with these notions can spotlight the limitations of dominant ontological positions that view plastics as inert and

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<sup>11</sup> My position is that the vast majority of plastics are unnecessarily produced and their utility outweighed by their demonstrable long-term intergenerational and socio-ecological impacts. This said, certain plastics remain necessary (e.g. in some medical contexts) until a less harmful material substitute is developed.

provide an ontological framework through which to understand the wider contexts of plastics pollution.

### **Socio-ecologically harmful systems**

Extensive social, political, and economic transformations have taken place since European imperialists began enforcing the Doctrine of Discovery<sup>12</sup> in the 15<sup>th</sup> century (Ngata, 2019). This has led to the widespread exploitation of our Taiao for the financial gain of the few who have amassed significant power, resources, and influence through imperialist processes (ibid.) This has resulted in the ubiquitous degradation of our Taiao, including human food webs, showing that linear economic systems like capitalism that pollute by design consistently endanger human health, as well as the health of non-humans (Ellen MacArthur Foundation, 2017). Simultaneously, the Land- and Ocean-grabbing agendas of colonial governments and corporations alike have replaced circular and regenerative precolonial Indigenous economies with linear, extractive, and inherently wasteful capitalist economic systems (Craigén, 2021). The constant generation of waste in capitalist economies further oppresses people who, under colonial systems, are already circumstantially vulnerable, such as lower-income and Indigenous communities (Liboiron, 2021).

Over the past several centuries, the prioritisation of profit over environmental and human health by colonial governments and capitalist corporations alike has resulted in the ongoing generation of pollution with little accountability. Industrial fracking, overfishing, ocean trawling, old-growth logging, deforestation, and the introduction of invasive species through colonisation for economic purposes (such as possums in Aotearoa) have all contributed to the exponential climb of extinction rates to between 1,000-10,000 times the natural rate (World Wide Fund For Nature, 2020; Ritchie & Roser, 2021). Importantly, Demeneix (2020) discussed how plastics pollution, chemical pollution, and biodiversity loss are fundamentally linked to the expansion of the fossil fuel industry. Underregulated industrial expansion has resulted in the emission of greenhouse gases (GHGs) on a scale large enough to warm our planet, with devastating yet disproportionate human and environmental impacts (Islam & Winkel, 2017). Throughout their life spans, plastics contribute to climate change through the large-scale emission of GHGs in the production and transport of plastics, as well as in the extraction of raw materials to create plastics (Shen et al., 2020). These processes are directly linked to the global-scale ecological problems that humanity is now facing (Hickel, 2021). Plastics pollution is one of the most visible and tangible of these

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<sup>12</sup> The Doctrine of Discovery was a 15<sup>th</sup> century Papal Bull (law) that provided European imperial powers with a moral and legal justification to colonise, subjugate, and exploit much of the world's Indigenous Peoples and their spaces over time (Ngata, 2019).

problems, as plastics pollution is now evident throughout all areas of our Taiao. Cumulatively, however, these processes represent the most socially and ecologically destructive process in the history of our species.

Through European imperial expansionism, Indigenous communities and their Land/Ocean territories throughout the world have been, and continue to be, destroyed, exploited, and abused. As the primary concern of capitalist entities is the maximisation of resource extraction for profit maximisation, industries have been shown to strategically externalise<sup>13</sup> the social and environmental costs of their business practices onto our Taiao (Domínguez & Luoma, 2020). From a colonial/capitalist perspective, these are the necessary ‘externalities’ of capitalist progress (Vunibola & Scobie, 2022). Such actions put all life at risk of harm.

This extractive and non-reciprocal ethos has underpinned European colonialism and its capitalist economic systems since their inception and entails particularly oppressive cultural assumptions (L. T. Smith, 1999). Due to these historical and ongoing inequalities, women, children, elderly, people with disabilities, Indigenous Peoples, coastal communities, and non-Organisation for Economic Co-operation and Development (OECD) countries are disproportionately vulnerable to plastics pollution and thus disproportionately impacted (United Nations Environment Programme, 2021a, para. 1). In conjunction with an anthropocentric belief in humankind’s supremacy over nature, this has shaped how the world is perceived and engaged with by colonial/capitalist governments, organisations, and societies alike (Liboiron, 2021; L. T. Smith, 1999). The widespread toxic plastics pollution that we are currently experiencing is just one symptom of this failing system (Ellen MacArthur Foundation, 2021).

Several scholars have thus concluded that to prevent plastics pollution going forward, human society must shift away from these extractive and individualistic worldviews and establish more reciprocal, inter-relational, and responsible relationships with our Taiao (Hickel, 2021; Diver et al. 2019). Indigenous leadership unhindered by colonial processes has been identified as crucial for facilitating these movements (Craigen, 2021). This is exemplified by how Indigenous Peoples are burdened with the massive responsibility to protect 80% of the world’s remaining forest biodiversity, while only representing 5% of the world’s human population (International Union for Conservation of Nature [IUCN], 2019). Indigenous Peoples take this responsibility seriously

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<sup>13</sup> The economic concept of environmental (and therefore, social) externalities refers to the uncompensated socio-ecological impacts of production and consumption in certain industries, including the petrochemical/plastics industry. “As a consequence of negative externalities, private costs of production tend to be lower than its “social” cost. It is the aim of the “polluter/user-pays” principle to prompt households and enterprises to internalise externalities in their plans and budgets” (OECD, 2003).

with little to no outside support, while often battling encroaching colonial forces that threaten their existence, as seen in the Amazon rainforest. Likewise, both Indigenous and non-Indigenous social enterprises such as zero-waste organisations (i.e. Para Kore and Xtreme Zero Waste in Aotearoa) have been instrumental in leading societal movements towards a circular economy (Hannon & Zaman, 2018). The Tiriti-centric focus of these organisations demonstrates how communities are working to decolonise relationships with our Taiao in each local, regional, and national, as well as global contexts.

### **Questioning dominant relationships with our Taiao**

The disconnection between people and our Taiao has occurred throughout multiple dimensions of human societies from education, economics, education, and spiritual belief. One oft-critiqued ideological position is the notion of a human-nature dichotomy that is a “western-based cultural formation going back thousands of years” (Plumwood, 2015, p. 445). Yoneyama (2021) argues that the idea of a human-nature separation goes hand-in-hand with anthropocentrism. This approach is evident in reductivist dominant sciences that conceive of complex systems such as our Taiao as the sum of their individual components (Suzuki, 2003). This serves to artificially compartmentalises our inherently interrelated Taiao (ibid.) and conceptually disconnects humans from ‘nature’ and has been viewed as antonymous to holism (Verschuren, 2001). This anthropocentric conceptualisation of the world is perpetuated by European imperial processes (Rangiwananga, 2020). This perspective holds that humans are the cognitive ‘creators’ of the world and that this has been enabled through humankind’s objective, rational, and compartmentalised scientific understanding of the world (Washington et al., 2021). Underlying this is an assumption of human exceptionalism, the validity and socio-ecological effects of which some contemporary anthropologists have called into question.

These processes have significantly contributed to the disconnection between humans and our interconnected Taiao, causing many people to lose sight of their socio-ecological obligations and responsibilities (Kimmerer, 2013). This has ultimately resulted in existential challenges that include plastics pollution, biodiversity loss, climate change, and so on (Suzuki, 2003; Pathak & Nichter, 2019). Many writers have discussed how the idea of the ‘environment’ in Western ontologies as a solely physical realm available to humans for extractive and utilitarian purposes demonstrates the inherent problem with anthropocentrism (Hirsch, 2017; Schlehe & Yulianto, 2020; Wareka, 2020; Evernden, 1993). Such ideas contrast with Indigenous conceptions of ‘nature’, such as the interconnected ‘Taiao’ in Te Ao Māori (Royal, 2007a) and ‘lingkungan hidup’ in Indonesian ontologies (Schlehe & Yulianto, 2020). Indigenous worldviews like these are

holistic and understand humans as just one being (with obligations and responsibilities) in a vast and sometimes incomprehensible world full of living and non-living beings (Wareka, 2020; Roberts et al., 1995; Johnson, 2013).

Ideas of anthropocentrism and human exceptionalism are also embedded in the English language. Kimmerer (2013) scrutinised this in *Braiding Sweetgrass*, noting how when English-speakers talk about non-humans, we would describe them as a 'something' rather than a 'someone' (p. 57). For example, we might say that 'something has left tracks here', 'something died here', or 'something is buzzing around my ear'; as opposed to *someone* (ibid.). This robs those beings of animacy, as though only human beings can be subjects that feel, think, or are "worthy of respect and moral concern" (Kimmerer, 2013, p. 57). This anthropocentric perspective contrasts with many Māori and other Indigenous worldviews, wherein all 'things' are living 'beings' that possess mana and mauri (Henare, 2001). As European ontological views have formed the basis of social, political, and economic systems in colonised countries (L. T. Smith, 1999), these ideas wield immense power and influence over international politics and trade (and consequently, the continued pollution of our Taiao). The wide influence of these ontological assumptions has proliferated through the intentional destruction of Indigenous worldviews by assimilative European imperialist systems (L. T. Smith, 1999; Ngata, 2019; Cormier, 2017).

### **Corporate imperialism**

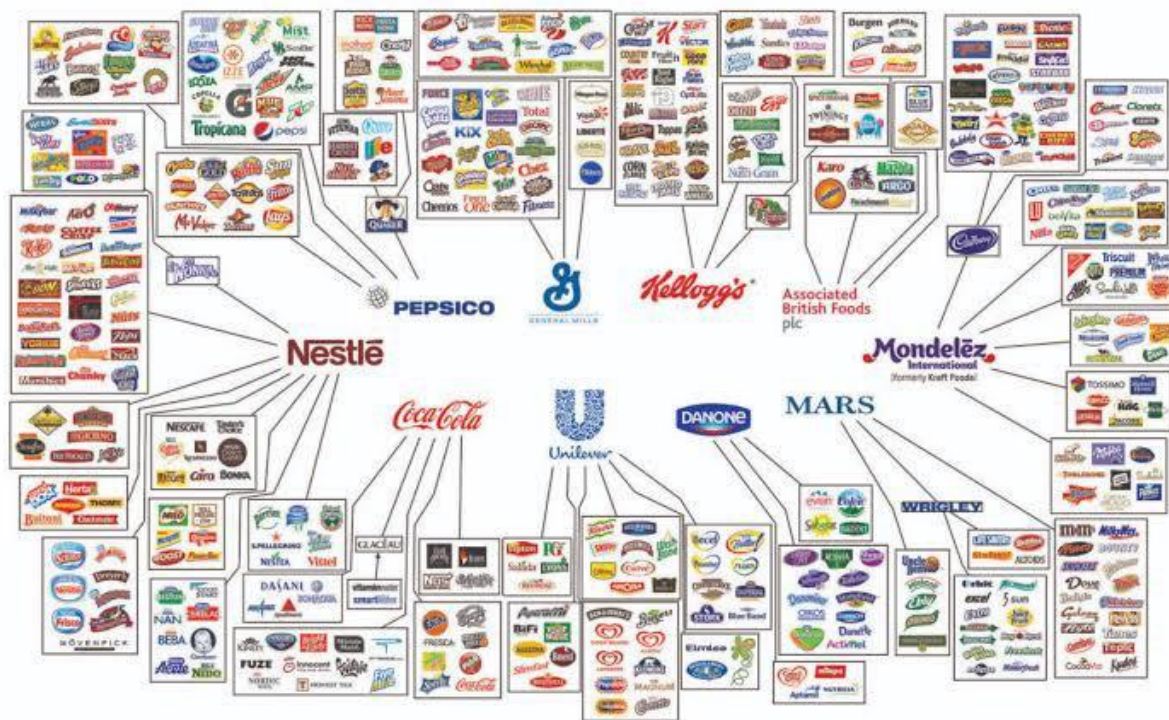
The process of corporations maintaining power over politics, society, and our environments is known as 'corporate imperialism' (Pralhad & Lieberthal, 2003; Pratt, 2011). This is the result of a dominant rationalist and capitalist culture that Plumwood (2005) argues reinforces this imagined separation between people and 'nature' (p. 5). The overproduction of plastics is one potent example of how corporate imperialism perpetuates capitalism's socio-ecologically harmful take-make-waste philosophy and has led to the global plastics pollution crisis (Blumhardt & Prince, 2022). Ecological degradation occurs throughout the full life span of plastics and includes marine, terrestrial, and atmospheric pollution (Center for International Environmental Law [CIEL], 2019a). This is perpetuated by the petrochemical industry, which includes some of the most powerful companies in the world such as oil companies and plastics and chemical manufacturers. These include British Petroleum (BP) and Royal Dutch Shell (their colonial connections front and centre), as well as Gazprom and Exxon Mobil; plastic manufacturers including Amcor, Sealed Air, and The Reynolds Group, who earn immense profits by selling to corporate empires like PepsiCo, Nestlé, and Coca-Cola (whose plastic usage equates to 200,000 new plastic bottles every minute [Thomas, 2020]).

Lazarus and van Asselt (2018) noted that “the political and economic interests and institutions that underpin fossil fuel production help to perpetuate fossil fuel use and even to increase it” (para. 2). This underscores how many governments’ support of and financial investment in the petrochemical industry makes systemic transformation in response to pollution difficult to achieve (ibid.). Moreover, these companies’ immense influence over media, society, and politics impedes upon the public’s access to the full range of science and information regarding plastics pollution, thereby inhibiting public responses (Nyberg, 2021), much as the tobacco industry obscured the harms of their products to preserve corporate profits (Murray et al., 2016).

The overuse of plastics packaging is a systemic issue, as was shown in the last four BFFP brand audit reports (2018-2021) (BFFP 2021, 2022a, 2022b), which collate brand audit data collected by citizen scientists from all over the world to identify major polluting brands. The top global polluters each year included major corporations such as Coca-Cola, PepsiCo, and Nestlé. The monopoly that these parent companies hold over consumer choices is staggering, as illustrated in the following graph:

Figure 6

*‘Illusion of Choice’ infographic (Oxfam America, 2014, para. 2).*



Societal reliance on recycling systems alone is clearly insufficient to prevent the continued pollution of plastics (Blumhardt & Prince, 2022). This highlights the need for systemic solutions such as increased regulation of plastics production, product redesign, and the implementation of accessible reuse/refill/repair systems. However, with such vested interests in maintaining high levels of plastics production, industries have done all in their power to downplay the real damage caused by pollution by investing in distractive and deflective marketing strategies (Smith & Brisman 2021; Pathak & Nichter, 2021). A 2021 report by the Changing Markets Foundation identified several of the common strategies used by the petrochemical industry to “distract, delay and derail progressive legislation to address plastic pollution” (p. 10). This shows how dominant global systems have enabled the petrochemical industry to become so powerful that they have a level of influence over legislation and political decision making (Changing Markets Foundation, 2020; 2021). For instance, the NZ government (amongst others) subsidises plastic-producing industries by funding recycling infrastructure, which is ineffective as the country’s primary waste management ‘solution’ (Blumhardt & Prince, 2022).

The widespread deregulation of corporate activity under neoliberal policies in the late 20<sup>th</sup> century (Pratt, 2011) has led to the normalisation and institutionalisation of single-use plastics, particularly in packaging (Mah, 2022; Vanaerschot & Plaisier 2021). This in turn has created consumer dependence on these products to ensure that the petrochemical industry (and their investors) maintain their immense power and profits over time.

**Figure 7 (left)**

*The Normalisation of Plastics in Society Exemplified by Entire Sections Dedicated to ‘Plasticware’ in Major Supermarkets. Pak’nSave Albany, Tāmaki Makaurau. May 2021.*

**Figure 8 (right)**

*Auckland Council’s New Plastic-wrapped ‘Litter’ and ‘Recycling’ Bins Arrive in Downtown Tāmaki Makaurau Already in a Waste Deficit. March 2021.*



Similarly, some corporations have been busy manipulating science and media to downplay the impacts of their business practices by falsely inflating recycling statistics; sponsoring favourable media content; denigrating honest but potentially damning information; greenwashing<sup>14</sup>; and perhaps most significantly, maintaining the narrative that individual consumers are responsible for global-scale environmental pollution (BFFP, 2021; Changing Markets Foundation, 2020; 2021).

Avoiding acknowledgement of the harms associated with industrial pollution is not a new concept, however. In 1925, sanitary engineers H. W. Streeter and Earle B. Phelps developed 'threshold theories' that describe freshwater systems as having self-purifying abilities ('assimilative capacity') that makes a certain level of pollution acceptable, believing that pollutants could theoretically 'assimilate' and cause little to no harm (Cairns, 2008). Throughout the 1930s, theories of assimilative capacity were extended to the contamination of human bodies by industrial pollutants, thought to be minimally harmful if scientifically undetectable, the common idea that 'the dose makes the poison' (Myers & Hessler, 2007). Today, we know this to be untrue as contaminants can have chronic health impacts in minute quantities (Akor & Muchie, 2011): parts per million and parts per trillion in the case of endocrine disrupting chemicals (EDCs) associated with plastics pollution (Street et al., 2018; Endocrine Society, 2022).

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<sup>14</sup> Greenwashing is when a company or industry promotes themselves and/or their products as 'eco-friendly', regardless of the actual environmental impacts of their business practises. It is essentially clever marketing aimed to distract consumers from facing the realities of pollution.

Considering plastics do not biodegrade (rather they break down into increasingly smaller micro- and nano-sized fragments), that they leach EDCs and other toxicants, adsorb additional persistent organic pollutants (POPS), posing health risks throughout our communities and our Taiao (e.g. CIEL [2019b] and Secretariat of the Pacific Regional Environment Programme [2021]), holding fast to threshold theories may be considered foolhardy.

### **Plastics pollution and the perpetuation of structural violence**

As Indigenous Land/Ocean spaces are commonly used to 'assimilate' (dispose of) industrial pollution, local communities are exposed to increased risk of harm (paperson, 2017; Liboiron, 2021). The growing evidence of microplastic contamination throughout Te Moananui-a-Kiwa (the Pacific Ocean) is particularly alarming (Ferreira et al., 2020; Garnier et al., 2019; Markic et al., 2018). As much as 70% of the protein intake of many coastal Māori communities comes from the Moana, their kaimoana (seafood) consumption is up to four times the global average per capita (New Zealand Ministry of Foreign Affairs and Trade, 2021). This puts these communities at a disproportionately high risk of marine plastic contamination compared to inland and urban communities. This highlights the impacts of plastics pollution on mahinga kai and the health of Māori and Pasifika communities, who are already overrepresented in Aotearoa's health systems (Medical Council of New Zealand, 2019).

Similarly, communities that are often located near waste management facilities such as landfills and incinerators are disproportionately exposed to the pollution emitted by these facilities. For example, the infamous 'Cancer Alley', a predominantly Black area of Louisiana, USA, is home to more than 150 petrochemical plants and refineries and consequently one of the highest cancer rates in the country (Castellón, 2021). The placement of toxic waste sites in poorer communities of colour is a decision the petrochemical industry makes time and again, leading to health disparities that the US government has so far failed to circumvent (ibid.). This kind of environmental racism is mirrored in the impacts of NZ's Public Works Act (1981), which has allowed the NZ government to confiscate Māori land for the development of public infrastructure such as waste management facilities. It makes economic sense for corporations and governments to avoid destroying the places in which they live, as so much Indigenous Land and Ocean space has been 'made available' (colonised and forcibly controlled) by governments that have similar economic interests and a motive to maintain the status quo (Liboiron, 2021).

### **Corporate/governmental vs. individual responsibility to prevent pollution**

Responsibility for preventing plastics pollution has traditionally been focussed on consumers (Ferreira, 2019; Dedeoglu & Ekmekcioglu, 2020). The word 'litter', though prevalent in both academic literature and policy, is problematic as it is often utilised by those in power to enforce the notion that individual behaviour (such as littering) is the principal driver of plastics pollution (Farrelly et al., 2021, p. 7). As such, this thesis will employ the term 'pollution' to draw attention to the structural causes of pollution and concurrently the importance of a holistic and systemic response to prevent further pollution.

Farrelly et al. (2021) state that corporations "have no right to manufacture such hazardous products for profit" (p. 268). This is a serious, often overlooked point and one that Betty Osei Bonsu, a Ghanaian brand auditor and youth ambassador for BFFP, has also addressed: "If I could meet the CEOs of this year's top plastic polluting companies, I would ask them: Is it okay to prioritize profit over nature's loss?" (BFFP, 2021). Indeed, why are plastics, an inherently harmful and toxic material that cannot biodegrade, allowed to be produced on such a demonstrably harmful scale?

Institutions such as the NZ government and capitalist corporations across several industries (including dairy, tourism, and packaging) have perpetuated ecological pollution by obscuring the true impacts of their business practices and passing responsibility for pollution onto consumers. In 2012, prominent freshwater ecologist Mike Joy criticised Tourism New Zealand's '100% Pure' slogan, considering the exponential rates of toxic pollution throughout the country. John Key, leader of the National Party and then-prime minister, publicly slandered Joy, stating that "He's one academic, and like lawyers, I can provide you with another one that will give you a counterview" (Satherley, 2018, para. 9). Others in the media suggested that Joy was a traitor that should be 'taken out and shot at dawn for economic sabotage' (Stewart, 2012, para. 7). This exemplifies the powerful disconnect between the reality of pollution in our Taiao, as Indigenous Peoples and scientists have shown, and colonial and capitalist agendas. Aotearoa today has one of the highest GHG emissions per capita in the OECD (OECD, 2017) and one of the most wasteful nations per capita (OECD, 2022), showing just how false the 'clean green' and '100% pure' national images, as projected by the NZ government and certain industries, truly is.

In recent years, the petrochemical industry has utilised their significant marketing and media influence to espouse contradictory messages that simultaneously describe humans as 'the worst species' due to the harmful impacts of anthropogenic pollution, alongside unifying messages that 'we are all in this together' (Liboiron, 2020, para. 16); as though pollution is ever experienced equitably. Such statements disregard the fact that a relatively small number of corporations are

responsible for the production of the plastics that end up polluting our Taiao. The ongoing obstruction of knowledge around genuine and potentially effective solutions to the plastics pollution crisis makes exercising individual agency over our behavioural and political decision-making evermore difficult (Vince & Hardesty, 2018). This prevents citizens from pushing back against plastics production (which is expected to double by 2030, tripling the amount of plastics polluted in our Oceans [UNEP, 2021b]), and the potential for powerful civic action against polluters. This is one of the key tenets of the plastics pollution crisis that citizen scientists aim to combat through brand auditing initiatives.

The NZ government, like many other colonial-capitalist institutions, has actively invested in maintaining the narrative of individual responsibility for pollution, and diverting responsibility away from industry and state, thereby failing to effectively govern in a way that ensures the prevention and elimination of plastics pollution. This is perhaps most obvious in the consumer-blaming crusades of the Anti-Litter Council, established by the NZ government in 1967. Utilising their significant social and political influence, the Anti-Litter Council has espoused the now well-known slogan “Be a Tidy Kiwi” (National Anti-Litter Campaign Council, 1972; Be a Tidy Kiwi, 2019). As with recycling initiatives, these campaigns are less about reducing plastics pollution and more about maintaining endless plastics production, continued consumer reliance on plastics, and thus inevitably, widespread plastics pollution (Farrelly et al., 2021).

Recently, the Anti-Litter Council has begun incorporating Māori values such as kaitiakitanga into their public communications about litter, while still largely ignoring the structural causes of pollution. Considering their proclivity to misdirect responsibility for pollution, this makes me a bit uncomfortable:

**Figure 9**

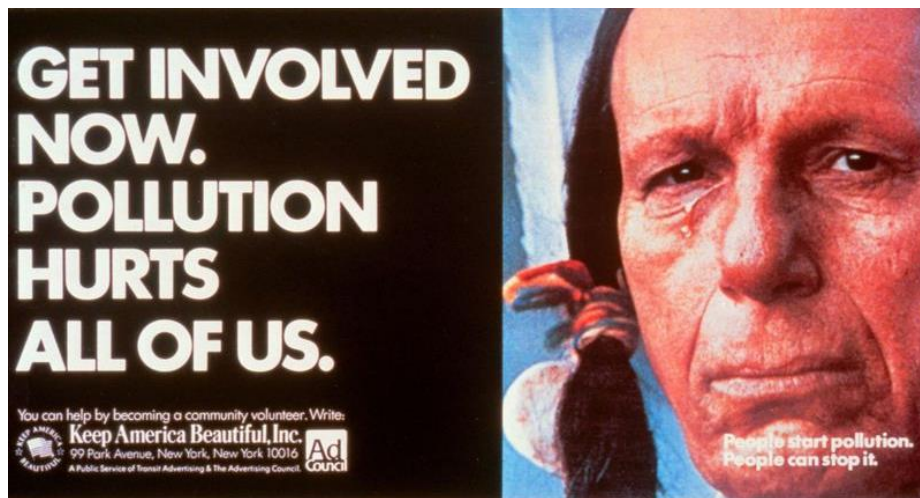
*Website Homepage (Be a Tidy Kiwi, 2022).*



The NZ government’s decision to appropriate Māori ideas, histories, and peoples for deceptive purposes is not original, however. In 1971, the US government capitalised on American sympathy (or perhaps guilt?) for ‘Indians’ (the Indigenous Peoples of North America) and the pollution affecting their Lands, in what became known as the ‘Crying Indian’ advertisement (Dunaway, 2017):

**Figure 10**

*‘Keep America Beautiful’ Advertisement (Ad Council USA, 1971, as cited in Dunaway, 2017, para. 1).*



The actor playing the ‘Indian’ is famously Italian and Keep America Beautiful, the organisation responsible for the campaign, was founded by plastic packaging manufacturers and sponsored by Coca-Cola (Dunaway, 2017). In taking another leaf out of the United States’ playbook, NZ’s Anti-Litter Council rebranded themselves as ‘Keep New Zealand Beautiful’ in 1984, in another effort to instil guilt in consumers for the pollution crisis. The desanctifying of Indigenous culture and the despoliation of Indigenous territories by colonial and capitalist entities go hand in hand here (Trask, 1991). As native cultures and spaces are consumed and decontextualised through colonial processes like these, they are more easily extracted from and polluted (ibid.). This continued disrespect of Indigenous Peoples, cultures, and spaces reduces them to historical artefacts in the backdrop of a whitewashed contemporary reality, as Castile (1996) noted has happened to Indigenous cultures in North America. It also functions to devalue the role of Indigenous Peoples as leaders in response to major socio-ecological challenges such as plastics pollution.

Despite the dedicated work of Iwi, Hapū, zero-waste, and plastics pollution-oriented community organisations (including Para Kore, the Aotearoa Plastic Pollution Alliance, the New Zealand Product Stewardship Council, and the Zero Waste Network), the NZ government’s response to

plastics pollution has so far been largely focused on waste management rather than waste mitigation. This is partially due to significant industry pushback against progressive legislation that could end plastics pollution has influenced political decision-making (Farrelly & Green, 2020). These processes have directed NZ's focus (including investment of resources, skills, time, and taxpayer money) towards recycling initiatives. As recycling alone will never offset increasing volumes of plastics production, this limited focus only perpetuates plastics (ibid.; Liboiron, 2021). By aligning with questionable organisations like Keep New Zealand Beautiful to focus on the impacts of litter and individual responsibility for plastics pollution (New Zealand Ministry for the Environment, 2022), the NZ government has missed critical opportunities to end the production of unnecessary plastics, resulting in further pollution. Consequently, there is a need for critical ethnographic, Kaupapa Māori, and community-led research on plastics pollution that prioritises the protection of our Taiao over the profits of powerful industries.

## **2. Decolonising plastics pollution research through Kaupapa Māori citizen science**

### **Legacies of European imperialism in dominant ontological and scientific systems**

European imperialism is a particularly long-lasting and influential form of white supremacy. The 18<sup>th</sup> and 19<sup>th</sup> centuries brought scientific advances such as new navigational equipment and shipbuilding technology to Europe, which enabled European empires to form colonies around the globe founded on institutionalised white supremacy. Aotearoa is just one of the many Lands colonised during this period. Using scientific racism to justify their exploitation of Indigenous communities, European imperialists brought catalogues of data, plundered riches, and stories of opportunity back to Europe. These processes gave dominant science, at least in the eyes of Europeans, what Moana Jackson has described as a “quasi-religious aura” (New Zealand Drug Foundation, 2009, 3:44). Dominant scientists began to perceive themselves and their methods as objective and therefore universally authoritative (ibid.; Rigney, 1999; Tuck & Yang, 2012; Simard, 2021). This is a notion that the anthropology of science, technology, and society (STS) has been working to deconstruct, in favour of a framework that better reflects the inherent relationships between people and ‘nature’ (Subramaniam, 2014). Decolonising plastics pollution science therefore requires thinking and acting from this holistic and integrated perspective.

Dominant science's theory of white supremacy would eventually lead to the development of empires founded on the genocide, enslavement, and dispossession of countless Indigenous Peoples worldwide. In NZ alone, the Māori population reduced from approximately 100,000 to just 42,000 in the years between 1769 and 1896 (Pool, 2019), while Māori owned Land

plummeted from 100% to a mere 8% between 1840 and 1920 (Te Puni Kōkiri, 2022, para. 12). Beginning in the late 1800s, Māori were forcibly institutionalised while the use of Te Reo Māori, which was the first and only language of many Māori at the time, was suppressed through violent assimilative schooling systems. This allowed white supremacy, and its underlying assumption of human exceptionalism, to take hold over much of the country's people. Due to this, racism today is not limited to people of racialised privilege as lateral racism amongst marginalised peoples, a side-effect of intergenerational trauma and the colonisation of the mind<sup>15</sup>, perpetuates prejudices that are deeply entrenched in colonised consciousnesses (L. T. Smith, 1999). These processes are not unique, however, as Indigenous Peoples throughout the world have had similar experiences with other colonial governments, demonstrating the extensive influence that white supremacy has over the global socio-political and scientific community.

### **Scientia nullius?**

Some social scientists have diverged from traditional Western notions of anthropocentrism, human exceptionalism, and particularly, their position on material inertia in relation to pollution. Sub-disciplines in which these discourses are currently burgeoning include material politics, agential realism, and new materialism. Prominent scholars in these spaces include Jane Bennett (2010), Karan Barad (2007), and Diana Coole and Samantha Frost (2010), respectively. Some researchers in this space have highlighted the value of conceptualising the impacts of plastics across geological time (Taffel, 2016). This has provoked ethical questions about the long-term socio-ecological impacts of global capitalism and hyper-consumption (ibid.). These discourses have also provided insights on the entanglements between plastics, toxic chemicals, living beings, and our Taiao as a whole. The core proposition of these disciplines is that agency is not limited to humans and that all beings possess 'vital materiality' (Bennett, 2010), a concept reminiscent of Polynesia's mauri (life force). This has enabled dominant scientists to better recognise how plastics escape human control and entangle themselves in the lives of organic beings and other inorganic beings.

However, as each of these theories were developed in dominant pollution science and philosophy, they emerge out of and transcend Cartesian dualist assumptions including human/hon-human dichotomies. Most of these authors have not acknowledged how similar concepts in Indigenous ontologies may have influenced their work, despite the wide body of literature on Indigenous theories of non-human agency available (Rosiek et al., 2020). Some pre-colonial Māori did not

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<sup>15</sup> The term 'colonisation of the mind' was first coined by Ngugi wa Thiong'o (1986) and describes how the "knowledge gained through our colonization has been used, in turn, to colonize [Indigenous Peoples]" (L. T. Smith, 1999, p. 59).

even have a word for non-human 'animals' (Wareka, 2020), such was the understanding that everything in our world is alive, interrelated, and indivisible.

Rosiek et al. (2020) argue that this lack of engagement reflects the institutional racism and Eurocentrism inherent to dominant science. While “different communities may come to similar understandings of the world through different conceptual paths” (Rosiek et al., 2020, p. 332), Indigenous philosophers developed understandings of material agency thousands of years prior to contemporary scientists (ibid.). Erasing or ignoring this history by presenting these notions as novel and/or original serves to maintain the belief that dominant science is the sole authority on such matters (ibid.). Similarly, the failure of these disciplines to meaningfully engage with Indigenous literature, which could offer invaluable insight for the development of their ideas, suggests an “assumption that Indigenous studies scholarship is primitive, less rigorous, [and] less theoretically refined” (ibid., p. 333).

Similarly, while there are many important ongoing studies investigating the ecological implications of plastics pollution in Aotearoa, few acknowledge the importance of understanding plastics pollution in relation to European imperialism, colonialism, and capitalism. Moreover, much of the research on major socio-ecological challenges such as plastics pollution has been centred within powerful and exclusive academic institutions (L. T. Smith, 1999; la paperson, 2017). This is an issue as researchers in dominant social science are often taught (institutionalised) to work and behave according to dominant epistemological notions that can perpetuate extractive methodologies and potentially cause further harm to Indigenous communities (Civic Laboratory for Environmental Action Research [CLEAR], 2017; 2019; la paperson, 2017; L. T. Smith, 1999).

As university systems are a crucial component of European imperial expansionism by providing information that sustains harmful systems of power and oppressive ideologies (L. T. Smith, 1999), this is not altogether surprising. The replication of harmful power dynamics through attitudes of entitlement to Indigenous Lands, bodies, and minds for research purposes is one example of how this harm occurs (L. T. Smith, 1999; Ngata, 2019; Liboiron, 2021). This is a legacy that all researchers need to diverge from if we hope to conduct ethical research and establish equitable relationships with our research communities. This said, decolonising anthropology may help us move from these harmful practices towards an epistemological system based upon power-sharing, reciprocity, and the appropriate involvement of traditionally subordinated Indigenous Peoples, sciences, and methodologies.

## **Systems thinking**

One of the most significant differences between Te Ao Māori and dominant Western ontologies is that Te Ao Māori understands humans as part of an interdependent and interrelated Taiao, as expressed through whakapapa. As such, polluting behaviours and systems that harm us and our Taiao are unsustainable and therefore unacceptable. For Māori and other Indigenous Peoples, this perspective is expressed in all relationships and informs individual and collective behaviours, as well as the structuring of societal systems. Accordingly, behaviours and systems that maintain balance (sustainability) within our Taiao, such as reciprocal exchanges and enforced restrictions on natural resources (rāhui), are fundamental to Māori social systems (Rout et al., 2019; Spiller et al., 2010). Rākete (2016) discussed how in Te Ao Māori, no “ecological systemic functions [are] epistemologically or ontologically hierarchised above any other. There can't be any difference. The ecology is a horizontal system, and every function of the ecology is equivalent to every other function of the ecology” (p. 2). This position contrasts with the dominant cultural assumption that humans exist in a strictly hierarchical and competitive system, with certain beings at the top and others towards the bottom (exemplified in common phrases like ‘survival of the fittest’, ‘dog eat dog world’, etc). This adversarial and antagonistic ideology is also visible in colonial political systems, which have become increasingly divisive rather than collaborative and consensus based. In environmental anthropology, however, these ontological positions have been heavily criticised, leading many anthropologists towards post-structuralist and post-humanist research positionalities.

### *Shifting perceptions of relationality and materiality*

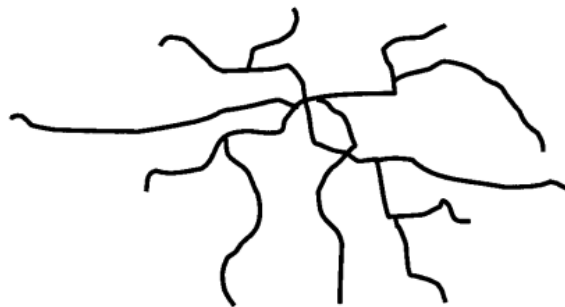
The movement away from dominant notions of reductionism, material inertia, anthropocentrism, and human exceptionalism suggests that there is a decolonising trend within ethnography that decentres dominant anthropocentric ideologies (Tummons & Beach, 2020). Bridging social anthropology and Kaupapa Māori requires this basis of intellectual humility, wherein we can openly discuss human limitations and decentre anthropocentrism when approaching major socio-ecological issues (Jasanoff, 2021) such as plastics pollution. Te Ao Māori’s relational and holistic approach to our Taiao and these challenges has become known as ‘systems thinking’ in dominant science, with scholars often drawing from Indigenous knowledge to develop their ideas, including the work of new materialists and anthropologist Tim Ingold.

The conceptual struggle between individualism and collectivism is widely discussed in the academic literature. Ingold (2006) has described dominant ways of being in relation to the world as a “logic of inversion [that] is deeply sedimented within the canons of western thought” (p. 11; Ingold 1993, p. 218–19). Here, Ingold critiques the notion that “beings originally open to the

world are closed in upon themselves, sealed by an outer boundary or shell that protects their inner constitution from the traffic of interactions with their surroundings” (p. 11), which he figuratively represents with the outline of a circle. In simpler terms, Western cultures often conceive of beings as enclosed (by their individual bodies/minds) and therefore separate from the world around them. Taking inspiration from Indigenous conceptions of relationality, Ingold argues that living beings are better understood as ‘lines’ (rather than enclosed circles) that inevitably interact with other beings throughout their lifetimes. This creates a ‘meshwork’ of relationships that Ingold represents as overlapping lines in the following diagram:

**Figure 11**

*Tim Ingold’s Depiction of ‘Meshwork’ Theory (Ingold, 2006, p. 13).*



This concept can be applied to plastics, which have been considered inert in much of the academic literature. This reflects the widespread assumption in dominant ontological systems that matter is lifeless and devoid of agency. From this perspective, physical things such as rocks, bones, soil, water, and air are often understood as inanimate objects. Comparatively, Te Ao Māori and many other Indigenous ontologies perceive matter as inherently possessive of mauri and mana (Henare, 2001), and therefore the potential to interact with other beings. The common misconception of plastics as inert is perhaps most humbling as humanity realises the impacts of micro- and nano-plastics, as well as chemical leakage from plastics, which have shown how plastics cause serious harm when they entangle with other beings in our Taiao (Taffel, 2016). Additionally, understanding plastics as beings with the ability to become entangled with other life-forms debunks the dominant narrative that humankind has mastered control over the natural world (Schlehe & Yulianto, 2020, p. 54).

Ingold’s ‘meshwork’ theory of relationality is reminiscent of the Māori concept of whakapapa. As a fundamental ontological and organisational framework in Te Ao Māori, whakapapa is the ‘lens’

through which Māori relate to the wider world (Rameka, 2018). In contemporary academia, whakapapa is sometimes used as a conceptual tool and framework by Māori authors to describe the relationships within complex systems, as has been done in this thesis. Whakapapa therefore provides a necessary basis for holistic and culturally contextualised research practice (Wilson et al., 2021) which is particularly important for the development of this Kaupapa Māori research.

Systems thinking must begin by acknowledging this whakapapa and the value of local Indigenous knowledge for understanding plastics pollution in Indigenous spaces, such as Te Moananui a Kiwa, as Indigenous ontological models are generally already systemic in nature (Zidny et al., 2020; Henri et al., 2021). This ensures that researchers do not privilege neo-colonialism in the form of dominant scientists forcing 'holistic systems thinking' over the top of Indigenous models of thinking. Essentially, systems thinking is not a new idea or phenomenon, which must be recognised to avoid further appropriation and cultural erasure in research.

While this kind of 'systems thinking' is a common cultural assumption in Indigenous ontologies, it can seem foreign in today's dominating individualistic and neoliberal cultural context. As Rākete (2016) observed, "From a liberal individualist perspective, we are all distinct units, but from Papatūānuku's perspective, or from the perspective of one embracing Papatūānukutanga [akin to whakapapa], we have always been one system" (p. 2). To summarise, capitalist and neoliberal economic ideologies individualise peoples' ways of being and self-perception (thereby creating more demand for individual product ownership), while fundamentally we all still belong to the same system: our Taiao.

### **Systems thinking and plastics pollution**

As discussed, plastics pollution is a global issue caused by dominant economic, political, and ontological systems. Holistically mitigating further plastics pollution therefore requires a system-wide response. While individual behaviour change, including the reduction of consumption levels in many OECD countries, is critical to addressing plastics pollution, this has been proven to have minimal impact on the structural causes of pollution (Ferreira, 2019; Dedeoglu & Ekmekcioglu, 2020). Systemic responses, including restrictions on plastics production, investment in refill/reuse/repair systems, and legal repercussions such as enforced compliance measures for harmful business practices and regulation for remediation, are needed in each local, national, and global contexts. Indigenous leadership is integral here, as the localised circular and sustainable societal systems developed by Indigenous Peoples prior to colonisation enabled their intergenerational survival in their environs.

This holistic perspective on plastics pollution includes: an interrelated and intergenerational understanding of the transboundary distribution and impacts of plastics; the multiple scales of governance involved in the perpetuation and management of plastics; and the implicit connections between plastics pollution, biodiversity loss, climate change, soil health, human rights and health, and the development of novel ecosystems. Plastics entangle with a variety of life forms throughout our Taiao, creating new social relations, increasing toxicity, and becoming embedded in the whakapapa of our ecological relations, further demonstrating how kirihou can be understood as the new skin of the world. It is vital that researchers recognise these challenges as threat multipliers so that we may develop a holistic approach to systemic transformation that responds to the root causes of these issues. Systemic change is often motivated by informed civic action, which is a primary goal of brand auditing. Thus, applying mātauranga Māori (such as systems thinking) to citizen science shows us how leading with Māori ontologies can help work towards systemic change that recognises the mutuality and multiplier effects of these issues, and responds accordingly.

### **Citizen science**

The traditional exclusivity of academia and colonial politics alike have created a restrictive system in which only university-qualified voices are heard where it matters, including at policymaking tables and in public media (Borrelle, Provencher, & Ngata, 2021). This process has made academic knowledge-production exclusive and ethnocentric, inhibiting equitable access to dominant science and academia (la paperson, 2017). Certain developments within anthropology, including the burgeoning of public, engaged, action, and applied anthropological methodologies, are working towards changing how the discipline engages with not only research communities, but with wider society.

Liboiron (2019) states that the positionality of citizen science largely outside of dominating scientific institutions offers a unique opportunity for research to be conducted with ethical accountability through processes of community peer review. In the Western academic canon, community peer review originated in anthropology and is an ongoing process whereby researchers actively seek consent, advice, and feedback from a research community throughout the research process (Liboiron et al., 2018). This ensures that the research design, methods, and intended outcomes are appropriate for each research community (Liboiron et al., 2018). This kind of community collaboration is also inherent within many Indigenous scientific systems. Citizen science's grassroots approach means that there is capacity to do research on the community's own terms, potentially leading to more equitable and culturally safe research relationships.

Citizen science presents an opportunity to embrace scientific humility (Jasanoff, 2003, p. 227), of which dominant science has been known to fall short (Liboiron, 2019; L. T. Smith, 1999). Citizen science also helps to mobilise communities to actively combat pollution, while engaging people in a research-based socio-political movement that they may not have had the opportunity to participate in otherwise.

Nevertheless, some citizen science initiatives have replicated the harmful power dynamics of dominant scientific inquiry. For instance, one citizen science project in Niger to explore how local Indigenous ecological knowledge may inform land management policy (Danielsen et al., 2018). Indigenous communities were contacted for involvement in the project and collaborated in data collection and focus groups. The facilitating non-Indigenous citizen scientists recognised the value of local Indigenous knowledge production methods for determining species richness and diversity at the research site. However, their methodological approach was based on a comparative analysis of Indigenous versus dominant scientific knowledge production methods (Danielsen et al., 2018) and portrayed dominant science as the valid, authoritative point of reference. Outcomes of the research for local communities were also limited, with research findings simply returned to the communities with the idea that they “could be used to promote indigenous and local input into reserve management” (Danielsen et al., 2018, p. 115). No further collaborative action appears to have been taken after findings were returned to the communities. This was also evident in Plummer and Van Dis’ (2019) citizen science research on plastics pollution in Maine, USA, which did not lead to any meaningful or actionable outcomes for the research community. Furthermore, while Danielsen et al. (2018) did recognise the importance of Indigenous ownership over Indigenous knowledge, it remains unclear whether any specific provisions were taken to protect Indigenous intellectual property. This is problematic, as citizen scientists working in Indigenous spaces must ensure the protection of Indigenous knowledge to avoid its appropriation and colonisation.

In Aotearoa, some citizen scientists investigating plastics pollution have helped communities to engage with Māori values such as *kaitiakitanga*. One example is the work of Te Kura Moana, a Kaupapa Māori citizen science programme that helps communities connect with the well-being and protection of local ecosystems (New Zealand Ministry of Education, 2020). Te Kura Moana has established a remarkable precedent for subsequent Kaupapa Māori citizen scientists, and I take inspiration from their approach for the development of our research methodology. While Te Kura Moana have, importantly, enabled communities to engage in *kaitiakitanga* by helping remove plastics pollution from local waterways, their citizen science initiatives have been largely experience-focussed and have not involved much data collection, analysis, or civic action. This limitation has been noted in other citizen science projects, where there has been a lack of open

and accessible databases to which data can be contributed (Jambeck & Johnsen, 2015). While it may appear that some citizen scientists have missed opportunities for political engagement, it is important to note that it is not always ethical or appropriate to do so. This is especially important for projects like Te Kura Moana that involve children/students, as political engagement often entails risks that children and younger students may not be able to recognise.

### **Brand auditing as citizen science**

Brand audits utilise brand identification to challenge the power of corporations in derailing efforts to regulate the production and pollution of plastics. As discussed in the literature review, the petrochemical industry has been extremely successful in avoiding regulation of their harmful and destructive business practices (Changing Markets Foundation, 2020). In some countries, petrochemical corporations have exerted their influence by ‘colonising’ plastics pollution research and funding scientists that mislead and misinform governments and the public to distract from, and delay, regulation of their business practises (ibid.). The situation has become so convoluted that it is now unclear whether it is governments controlling corporations, or if the reverse is true. Brand audits and other citizen science initiatives offer one tangible method of challenging these pernicious power structures by conducting plastics pollution research from the standpoint of local communities invested in socio-ecological protection. Citizen science has helped communities reclaim agency over challenges like plastics pollution when corporations, governments, and dominant academic institutions have failed to act effectively (Weston, 2017; Changing Markets Foundation, 2020). It is also worth noting that brand identification is one of the few methods available to everyday citizens that have generated practical outcomes for communities in addressing plastics pollution.

Every year since 2016, BFFP (2022b) has been collating information from their global brand audit database to publish brand audit reports that identify which companies are producing the plastics that end up polluting our Taiao. The brand audit movement has grown exponentially since its inception and as public and political awareness of BFFP’s report findings has grown, several companies have been pressured to announce ‘commitments’ to often minimal and unambitious changes in their plastics usage (BFFP, 2021). For example, Coca-Cola, the top polluter in every report so far, announced in 2018 that they would collect one plastic bottle for every bottle sold to help reduce pollution. However, global “brand audits [in 2021] recorded more Coca-Cola products than the next two top polluters combined—as has been the case each year since 2019—suggesting that Coca-Cola’s pledge is having little impact on the environmental pollution caused by their products” (BFFP, 2021, p. 3). These pledges are superficial attempts to appear responsible and save face, and ultimately, they make an insignificant impact on the reduction of

plastics production and pollution (in other words, this is mere greenwashing). As genuine and effective systemic change have not yet been forthcoming from within these profit-driven corporations, our governments, as the only party with the power to regulate destructive business practices, have a responsibility to hold these corporations accountable. As has become clear, however, effective regulation will likely only come from increased public pressure based upon convincing data, such as that collected through brand auditing.

BFFP's brand audits have been crucial for raising awareness of these problems and establishing an international database on plastics pollution with which regulatory legislation can be created. It is important to reiterate that in Aotearoa, as in many countries, plastics pollution research has sometimes been hijacked by biased corporate and political actors that continue to redirect blame onto consumers rather than focus on a holistic, full life span approach to pollution mitigation. Accordingly, BFFP (2020) promote enforceable systems of product stewardship (corporate responsibility for their products' life-long socio-ecological impacts) as essential for the effective long-term mitigation of plastics pollution. Brand auditing therefore plays a critical role in shifting the dominant narrative away from individual responsibility for plastics pollution back to the powerful corporations and institutions that produce plastics and that are best positioned and hold the most power to effectively stymie plastics pollution at source.

### **The need to decolonise brand auditing**

BFFP's brand audit methodology was developed within a dominant Western ontological paradigm. This worldview entails cultural and moral assumptions that are not universal (L. T. Smith, 1999). This means that, despite the assuredly good intentions of brand auditors worldwide, BFFP's methodology does not consider the potential impacts of brand auditing on Indigenous Peoples and may assume entitlement to Indigenous spaces and communities for research purposes. As such, adapting BFFP's brand audit methodology for the Whau context reflects the Kaupapa Māori approach of avoiding the perpetuation of harmful colonial ideologies through our research.

Within a Kaupapa Māori framework, citizen science projects must be co-designed by researchers and local communities, particularly the Iwi/Hapū with the local mana whenua, so that the research appropriately engages with local whakapapa, mātauranga, and tikanga (customs/laws). This is vital as local mātauranga often encompasses valuable insights of the ecological relationships and distribution and impacts of plastics pollution in the local community. This said, researchers engaging with local mātauranga must be careful not to treat Indigenous knowledge as a resource to be extracted for research purposes. Local mātauranga should only be engaged with under the supervision and control of traditional knowledge-holders, otherwise it can be misused

or appropriated and cause further *mamae* (harm) to Indigenous communities. This was recognised in the United Nations Commission on Human Rights (1993) *Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples* and the United Nations (2007) *Declaration on the Rights of Indigenous Peoples*.

As Kaupapa Māori research values a community-based, politically engaged, and socio-ecologically respectful approach to research (Pihama et al., 2015; L. T. Smith, 2015), it aligns well with the general aims of citizen science and especially brand audits. Adapting brand auditing for this Kaupapa Māori context helps to direct the research towards meaningful and beneficial outcomes for our research community. Maintaining a focus on community collaboration and empowerment in research is one way that scientists can avoid perpetuating extractive methodologies and knowledge commodification through our research. Kaupapa Māori brand auditing therefore presents an opportunity to more closely work with local communities to achieve systemic change in response to plastics pollution. This can also help to invigorate *hīkoi* (protest, march; public mobilisation and resistance) and encourage *rāhui* (restrictions on harmful activities) in response to plastics pollution.

## **Conclusion**

Exploring the *whakapapa* of plastics pollution and Kaupapa Māori citizen science has helped build an understanding of some of the complicated relationships present throughout the full life span of plastics. The literature shows that by recognising the power dynamics between colonial governments, capitalist corporations, universities, and citizens, researchers can design more democratic and reciprocal methodologies that work for our *Taiao*, instead of causing further harm.

As Kaupapa Māori citizen science requires a close engagement with research communities, it offers a way of linking anthropology with *kaitiakitanga* and socio-ecological activism, potentially leading to community-driven changes in policy and industry practice that prevents further plastics pollution. This is one way of further decolonising anthropology through appropriate collaboration with Indigenous Peoples and more focus on impactful research that serves the needs and aspirations of research communities. As an institutionalised and university-educated student (read: young, naïve, and colonised), I do not pretend to know all the answers. That said, I follow the lead of those with the *mana*, experience, and expertise in navigating these fraught and uncomfortable research spaces, with the aim of developing a more grounded, equitable, and Indigenous-led research methodology.

## II. TO THE AWA

\* \* \*

This methodology chapter is guided by the Awa: fluid, adaptable, and iterative, a fitting symbol of Kaupapa Māori research as well as representative of the primary research site of this study, Te Wai Whau. From the beginning, this research has centred around Te Wai Whau and the meshwork of relationships present amongst the Awa's diverse communities in relation to plastics pollution.

This project is methodology-focused and relationally-oriented, meaning that there is a strong focus on *how* the research is approached and conducted. This acknowledges the need to further decolonise anthropology while incorporating culturally relevant research frameworks such as Kaupapa Māori. As a community-based citizen science project, the framing of this research within Kaupapa Māori ensures that the cultural context of the Whau is respected and incorporated into the research design and informs any potential outcomes. Both qualitative methods, such as semi-structured interviews, online community engagement, and participant observation, and quantitative methods, such as the collection and analysis of brand audit data, were used in this study. This mixed methodological approach serves to address the core aim of this project: the co-creation of a Kaupapa Māori citizen science methodology for plastics pollution research at Te Wai Whau alongside the Whau community.

### 1. Developing a methodological approach

#### Finding my Tūrangawaewae

As previously discussed, Kaupapa Māori research values community-based approaches to our major societal problems (Rangahau, n.d.). As such, the first step in finding my tūrangawaewae (place of standing) in this complex research context was connecting with the communities already living, working, and breathing in these spaces. This meant getting to know the Whau as a living being with personhood as well as a focal point of countless interconnected lives in the past, present, and future. This also meant delving into the local and international academic discourses around plastics pollution and speaking with (or rather, listening to) the local communities around the Whau.

Through the AIM2 research programme, I was able to easily connect with many of the people and organisations already closely involved with the Whau. This included Te Kawerau ā Maki, the mana whenua of the Whau; award-winning Kaupapa Māori zero-waste organisation Para Kore; and Whau-side ENGO EcoMatters; each of whom would come to play an invaluable role in this research. I quickly learned that when there is a shared purpose to work towards, most people are willing to help in whatever capacity possible. This made the process of developing relationships with the Whau community very straightforward and comfortable.

Before starting research, I was introduced to Robin Taua-Gordon, an incredible wahine and educator who was AIM2's primary contact with Te Kawerau ā Maki. I first met Robin at the rivermouth of the Whau in May 2021, when several AIM2 researchers (including myself) were welcomed into the space by Robin and her father, Kaumatua George, through a pōwhiri (welcoming ceremony). This process helped solidify our relationships with each other and with the Whau, as well as providing a space to collectively share our intentions for the research we were about to commence.

### **Safety first**

Throughout this project, the foremost priority has always been on creating a safe, comfortable, and respectful research environment. This is particularly important as research in Indigenous spaces has often been unsafe, uncomfortable, and disrespectful of the existing relationships between people in their local Taiao. As this study is closely involved with Indigenous communities and is politically engaged, it was vital to identify and mitigate the potential for harm early on (L. T. Smith, 1999). Prior to commencing research, my supervisors and I conversed at length about the potential ethical implications that this research could involve. It was especially crucial that we consider all ethical, health, and safety implications that may arise through my chosen methods and potential outcomes to proactively mitigate the potential for harm (Massey University Human Ethics Committee [MUHEC], 2017).

The MUHEC protocols ensure that student researchers consider, avoid, prepare for, and respond to, any potential issues that may arise during research through an ethics application to the university (MUHEC, 2017). For this study, a full ethics application was submitted to MUHEC; this was reviewed and approved in July 2021. This process involved recognising how potential conversation topics that could arise during interviews and community engagement (such as intergenerational trauma, white supremacy, and ecological degradation) could emotionally harm some kaiāwhina. This is especially important when conducting research in Indigenous spaces that have a long and contentious history with researchers, such as Aotearoa (L. T. Smith, 1999;

Liboiron, 2021). We noted how research on these subjects must be approached with caution and from a place of love, care, and respect, and only with the full and informed consent of kaiāwhina. Accordingly, I ensured my research intentions were transparent and understood by kaiāwhina from the outset, which supported the creation of safe spaces in which kaiāwhina could express their thoughts and emotions freely. We progressed on a basis of mutual respect that acknowledged kaiāwhina's right to withdraw at any time or refuse participation in any part of the research.

Due to the outdoor and physical nature of brand auditing at the Whau and the potential risks that this entails, we made sure to consult Massey University's Health and Safety team for advice. After scouting the intended brand auditing areas around the Whau, a fieldwork health and safety plan was established detailing precautionary actions (such as physical hazard assessments and emergency planning) to mitigate the potential hazards involved with riverside brand auditing. Massey's Health and Safety team advised that I would require a first aid certificate to lead riverside brand audits, so I completed a St. Johns first-aid course prior to brand auditing. Most brand audits were conducted alongside EcoMatters, a Whau-side ENGO who facilitate conservation projects such as plastics clean-ups and native planting in Tāmaki Makaurau. As EcoMatters have their own health and safety protocols for the community brand audit/clean ups we facilitated, there was an additional layer of preparation and protection in place for our citizen science community.

As it is paramount that the mātauranga collected in this study remains protected and under Te Kawerau ā Maki's control and authority, all intellectual property has been stored on my own password-protected hard drive that only myself and Te Kawerau ā Maki are permitted to access and share. I am guided here by local tikanga around the protection of intellectual property, the Waitangi Tribunal's (2011) report *Ko Aotearoa Tēnei*, article 8(j) of the United Nations (1992) *Convention on Biological Diversity*, and the United Nations (2007) *Declaration on the Rights of Indigenous Peoples*. Each of these documents describe the importance of ensuring the protection of Indigenous intellectual property in all research contexts.

### *Limitations*

Considering the politicised nature of this project, the absolute 'do no harm' principle central to research ethics is not always appropriate or even desirable. As Joensen (2019) discussed, research strictly adherent to the 'do no harm' principle can be seen as "a patronising process reinforcing power hierarchies, keeping people in their place and quietening [their] voice" (p. 27).

Avoiding difficult conversation topics and thereby missing opportunities for deep, nuanced, and personal conversations does not do justice to the Kaupapa Māori values of this research. It is also worth noting that as an Indigenous Māori researcher with my own complicated whakapapa and positionality, certain aspects of this research process have elicited emotional responses for me. We could call aspects of this research retraumatising, and yet confronting these difficult realities has been an invaluable part of developing my approach to decolonising plastics pollution science. Similarly, brand auditing can undoubtedly ‘harm’ the corporations that are identified as polluters, yet brand auditing is justifiable as protecting the health of our Taiao precedes the protection of profit-focused and socio-ecologically harmful business practices.

Linda Tuhiwai Smith (1999) has discussed the necessity of working in this ‘messy intersection’ that simultaneously documents social and ecological injustice, while challenging dominant systems of power that perpetuate racism, colonialism, and oppression (p. 254). Accordingly, it is vital that we as researchers are transparent with kaiāwhina about our intended topics of inquiry, while also preparing ourselves to navigate potentially difficult, personal, and emotional conversations. Linda Tuhiwai Smith (1999) elaborated on the notion of ‘struggle’ as it is experienced in these contexts, acknowledging that struggle is a tool for both social activism and theory that can “embrace and mobilize agency, and turn the consciousness of injustice into strategies for change” (p. 254). This resonated with the aims of my research on plastics pollution and the disproportionate nature of its impacts. It also helped direct the focus of my research towards proactive action to end pollution, rather than only recording the impacts of plastics pollution at the Whau. Ultimately, while it is important to shed light on the good, bad, and the ugly while working against corporate giants and global imperialist systems, we as researchers must always remain mindful of how our research could impact upon the well-being of each our kaiāwhina, ourselves, and our wider communities (L. T. Smith, 1999; Irwin, 1992; MUHEC, 2017). As such, approaching this anthropological research through applied, Indigenous-led, and community-based ethnography helps to decolonise the discipline by focusing on linking research with meaningful socio-political transformation.

## **2. Methods**

The core methods used in this project reflect Kaupapa Māori research values and include the following: online community engagement and wānanga (discussions) to involve local communities in the research; a Kaupapa Māori brand auditing process involving community-based clean-up and data collection initiatives at the Whau; and semi-structured interviews with people involved with mitigating plastics pollution to inform this Kaupapa Māori citizen science methodology. These methods were chosen to address this study’s aim of working with the Whau

community to co-create a Kaupapa Māori citizen science methodology for plastics pollution research at the Whau. The online engagements, literature review, and semi-structured interviews provided critical context for approaching plastics pollution holistically, equitably, and with a distinctly Māori lens; while developing and conducting Kaupapa Māori brand audits has provided mātauranga that we can potentially use to inform systemic responses to plastics pollution.

### **Online community engagement**

As this research was conducted between 2020 and 2022, the COVID-19 pandemic significantly affected the project's design and methodology. For much of the pandemic, Tāmaki Makaurau was the epicentre of outbreaks and consequently saw the most restrictions, with the longest lockdown in place from August-December 2021. This coincided with the timeline I had originally planned for my fieldwork and community engagement, including both brand auditing and in-person interviews. The outbreak meant that it was unsafe and impractical to physically meet with the Whau community or conduct brand audits at the Whau. Consequently, I redirected my focus during this time to connecting with the Whau community online.

Little has been written about the implications of doing Kaupapa Māori research online, possibly because most Kaupapa Māori practitioners prefer in-person research and have had small reason to work online. COVID-19 changed that, and it was certainly difficult being unable to spend more physical time at the Whau engaging with the community. However, working online offered opportunities to connect to larger Aotearoa-wide communities that I may not have had access had the research been more fully 'field' based. Through email and social media platforms like Facebook, Instagram, and Zoom, I was able to continue research from home. Utilising AIM2's network of relationships, I was able to kōrero (converse) with other Kaupapa Māori, kaitiakitanga, and plastics pollution-oriented people to share and build my project design, methodology, and to establish my intended outcomes for the research.

Through AIM2 I had contacts at Para Kore and Greenpeace Aotearoa with whom I could develop relationships online during lockdown. Fortunately, they were open and willing to share their platforms and promote our message of plastics pollution mitigation through Kaupapa Māori citizen science. In September 2021, Hollie Russell (Ngāti Rakaipaaka), a kaiārahi (educator) from Para Kore with prior experience working for the NZ government and her own master's in social anthropology, approached me after one AIM2 zui (Zoom meeting) to ask if I would be interested in talking about my project on Para Kore's Facebook Live series about microplastics. I agreed and shortly after we had a long and in-depth live conversation and Q&A session with Para Kore's audience, who proved to be very interested in the research we were doing. We received over 20 comments from viewers around the motu (country) who were passionate about actively

protecting our Taiao and discussing the wider, imperial context behind plastics pollution. This opportunity to engage with a wider and largely Māori audience allowed us to connect with people doing similar work around Aotearoa, and therefore helped shape the way the project progressed.

Around the same time, I joined the Aotearoa Plastic Pollution Alliance (APPA), a collective of researchers, artists, educators, and activists working to end plastics pollution in Aotearoa and throughout Te Moananui a Kiwa. During an APPA monthly meeting I met Juressa Lee (Ngāpuhi, Ngāti Hine, Ngāti Rangi, Ngāi Te Rangi, Rarotonga, Samoa, Tahiti), the plastics pollution campaigner for Greenpeace Aotearoa. Following the meeting, I introduced myself to Juressa over email and we started to get to know one another. In the lead up to the United Nations Environmental Assembly meeting in February 2022 (UNEA-5.2), Juressa invited me to write a blog post for Greenpeace Aotearoa about the highly anticipated talks around a global treaty to end plastics pollution. Juressa requested that I talk about my Kaupapa Māori research and the discourse around the global plastics treaty in a way that Greenpeace Aotearoa's Māori audience could see themselves in. As using and normalising Te Reo Māori is a key aspect of Kaupapa Māori research (Rangahau, n.d.), I decided to incorporate as many Māori words as possible in the blog post. This led to positive responses from friends and whānau, with many appreciating the incorporation of Te Reo Māori in the predominantly English article. Even friends from overseas, with no knowledge of Te Reo, were able to make inferences and fully comprehend the messages expressed in the piece. This helped encourage my use of Te Reo in other writings, including this thesis and in my work as APPA's communications co-manager, a role I was elected to in March 2022. Through online engagements such as these, I was able to use this research to act upon plastics pollution during lockdown and work towards our aim of achieving meaningful outcomes for the Whau community in relation to plastics pollution.

### **Semi-structured interviews**

By October 2021, my knowledge of the groups working on plastics pollution around the Whau was growing and I began to think about how and with whom I would conduct interviews. I approached kaiāwhina selection cautiously as I wanted to ensure that the people I interviewed had the availability to collaborate with me during the difficult circumstances imposed by the pandemic. Potential kaiāwhina also needed to have certain expertise and experience relating to plastics pollution and ideally a connection to the Whau, as this was my primary site of research. However, it was equally important to ensure that the people I approached had a strong comprehension of both Kaupapa Māori and plastics pollution. It therefore made sense to approach people that I was already developing relationships with before requesting their time, energy, and mātauranga for an interview.

The four kaiāwhina I interviewed were Hollie Russell and her partner Te Kaurinui Parata (Ngāti Wai) from Para Kore, Juressa Lee from Greenpeace Aotearoa, and Carla Gee (Ngāti Kahungunu), CEO of EcoMatters. These kaiāwhina were selected based on our prior relationships and their expertise in plastics pollution response and mitigation in each local, national, and international contexts, which allowed our conversations to cover a breadth of interwoven topics that were of personal importance to kaiāwhina.

A semi-structured interview methodology emerged as the most appropriate method for addressing my research aims. These aims focused on exploring how approaching plastics pollution through Kaupapa Māori citizen science could produce useful mātauranga that leads to beneficial outcomes for the Whau community. Using semi-structured interviews with open-ended questions helped ensure that kaiāwhina were able to lead the conversation towards topics of most interest and importance to them (O'Brien, 1993; CLEAR, 2019; Cram, 2017). I sent a list of guiding questions that were tailored to each kaiāwhina's experience prior to the interviews, but kaiāwhina often chose one or two topics and led the conversation in new and unexpected directions. This allowed the research to take on more depth and personal meaning, evoking more nuanced conversation about how kaiāwhina thought about, related to, and actively resisted plastics pollution in their work and personal lives.

While Kaupapa Māori research is ideally done kanohi ki te kanohi (face to face [Rangahau, n.d.]), as we were in lockdown and I had a limited timeframe to conduct, code, and analyse interviews before focusing on thesis writing, all interviews were conducted online over Zoom. This format worked well given the circumstances, but it was limiting in that it was difficult to notice the more nuanced aspects of personal communications such as body language, facial expression, and mannerisms, which may have elicited further insight of how kaiāwhina thought and felt about these subjects (Rangahau, n.d.). Speaking with kaiāwhina multiple times before and after the interviews proved crucial for addressing this. Ensuring time for whakawhanaungatanga (establishing positive relationships) prior to and during interviews helped to build a relational basis of understanding between myself and kaiāwhina, which helped inform my interpretations of our discussions.

Kaiāwhina had an opportunity to edit the interview transcriptions as they saw fit before my analysis. A full draft of this thesis with kaiāwhina's contributions in context was also shared for feedback and final consenting before submission and potential publication to prevent the colonisation of their mātauranga (Tuck & Yang, 2014). Community review has been an essential and ongoing process throughout this project to ensure that the research remains ethically sound in the eyes of kaiāwhina and the wider Whau community. These steps are integral to Kaupapa

Māori social research, as kaiāwhina should be in control of how they are represented in any publication in respect of their mana and rangatiratanga (Pihama et al., 2015).

Given the loose structure and informality of my approach, interview timeframes ranged from 35 minutes to 2 hours depending on the availability of kaiāwhina. Additional communications with kaiāwhina before and after interviews allowed us to have a closer and more intimate relationship than would be possible in a strict single-hour interview timeframe. Irwin (1992) spoke of the importance of creating culturally safe spaces to kōrero openly in ethnographic research, particularly when working with Indigenous Peoples. Like Irwin, it is my responsibility to “seek to negotiate a journey through this study which satisfies the integrity of the scholarship both of the Maori [*sic*] world and of academia” (Irwin, 1992, p. 11). This included centring the research topics and interview questions within Te Ao Māori and incorporating Māori principles such as rangatiratanga, whakawhanaungatanga, and manaakitanga (hospitality, generosity; literally the upholding of mana) into the research methodology.

### **Kaupapa Māori brand auditing<sup>16</sup>**

The final, central, and most extensive method used in this research was brand auditing, adapted for the biophysical, sociocultural, and political contexts of the Whau. This mainly involved applying Te Ao Māori and Kaupapa Māori research methodologies to BFFP’s brand audit methodology. The holistic and intersectional nature of Kaupapa Māori helped elucidate the interconnections between plastics pollution, climate change, biodiversity loss, and the imperialist systems that perpetuate these issues (Mahuika, 2008; L. T. Smith, 1999). Applying this holistic perspective was one of the initial steps taken in developing this Kaupapa Māori brand audit methodology. Aligning Kaupapa Māori and citizen science methodologies also helped direct our research focus towards motivating systemic change and collective action on plastics pollution (G. H. Smith, 2003; Jackson, 2015). Participant observation alongside the collection of brand- and materiality-related data provided both qualitative and quantitative mātauranga that informed what collaborative actions could emerge from this research. This provided a rich space for ethnographic study where we as brand auditors could share our mātauranga and worldviews while strengthening our collective mātauranga and rangatiratanga to effectively respond to plastics pollution.

From the outset it was critical that I discuss the appropriateness of adapting brand audits for research at the Whau with Te Kawerau ā Maki. This also helped ensure that the project could

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<sup>16</sup> An overview of our Kaupapa Māori brand audit methodology has been appended to the end of this thesis (Appendix 2) and is available for appropriate and considered adaptation in other Kaupapa Māori contexts.

potentially lead to meaningful outcomes for the Whau community. We established that any mātauranga collected through brand audits at the Whau belonged to Te Kawerau ā Maki. As the Waitangi Tribunal's (2011) report *Ko Aotearoa Tenei* affirmed, this data is local mātauranga and it is Te Kawerau ā Maki's right to control how it may be used, for example in communications with industry and governing bodies.

Initially, I had idealistic expectations about working intimately with Te Kawerau ā Maki throughout this project. However, I soon learned that while Robin and Te Kawerau ā Maki were enthusiastic about the project, they did not have the availability to collaborate as closely as I had hoped given their other responsibilities and the difficult pandemic context. This is often the reality of community-based research, as Linda Tuhiwai Smith (1999) has acknowledged: "Idealistic ideas about community collaboration and active participation need to be tempered with realistic assessments of a community's resources and capabilities [or rather, availability], even if there is enthusiasm and goodwill" (p. 140). This said, as Te Kawerau ā Maki recognised the value of Kaupapa Māori citizen science for building our collective response to plastics pollution at the Whau, we were then able to begin adapting BFFP's brand audit methodology for the Whau context<sup>17</sup>.

#### *Brand auditing at the Whau in 2021*

By June 2021, after several conversations with Massey's Health and Safety representatives and scouting the Whau riverside for safe and appropriate locations to audit, I was very keen to start brand auditing. At this point, I had no experience facilitating community events like this and was admittedly a bit nervous. Around the same time, I had a meeting with Pamela Gill (Ngāti Porou, Te Aitanga-a-Hauiti), a self-described "stream girl" who works for EcoMatters. I had first met Pam in an AIM2 Zoom meeting in early 2021, but we had yet to meet *kanohi ki te kanohi*. As one of Pam's focuses is on facilitating clean ups at the Whau, she invited me to the EcoMatters building to discuss my project. Over tea and biscuits, we discussed the potential value of building a brand audit database while also fostering a sense of *kaitiakitanga* in those we worked with. Pam also shared tools that would prove extremely useful, like Auckland Council's GeoMaps mapping service. Through GeoMaps, Pam demonstrated how we could identify where the stormwater discharge points around the Whau were, which she explained usually meant we could find lots of plastic waste there.

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<sup>17</sup> A fuller analysis of this Kaupapa Māori adaptation of BFFP's brand audits for the Whau context is the focus of the second findings chapter, wherein more nuanced aspects of Kaupapa Māori citizen science are explored.

In late July, I joined Pam for an EcoMatters-led community clean-up that involved students, teachers, and parents from a local school. Pam selected Onewherowhero Park as our clean up and brand audit site as it was Whau-adjacent and popular with local schools and sports clubs. As we would soon learn, this meant we would find plenty of plastics there. After the clean-up we had a large pile of plastic waste to sort through and begin building our database:

**Figure 12**

*The Unsorted Haul from our First Brand Audit at Onewherowhero Park in July 2021.*



This was the first and last brand audit for the year as the re-emergence of COVID-19 in Aotearoa led to Tāmaki’s four-month lockdown from August through December 2021. This was when I redirected the focus of my research towards interviews, online engagements, and reviewing the literature.

#### *Resuming brand auditing in January 2022*

When Tāmaki’s lockdown ended in December 2021, we were quickly approaching holiday season and with everybody’s backed-up schedules, organising brand audits proved impractical until the New Year. We were also wary of moving too quickly and putting ourselves and our community at risk, so Pam and I decided it was most appropriate to wait until early 2022 before cautiously resuming brand auditing. In mid-January 2022 Pam and I held our second brand audit with environmental science student researcher, Emma Bullock. This was exciting for me as I knew little about environmental science, had been freshly motivated by the interviews and online engagements, and was keen to get back to the Whau after a long hiatus from auditing and learn from fellow citizen scientists. We each shared our mātauranga about plastics pollution at the

Whau, the complex socio-politics of the global plastics pollution crisis, and how we might respond to it as a community. This created a space of mutual learning that we carried through all subsequent brand audits as we began to build our database. By sharing this brand audit methodology with those interested in doing their own audits, we have been able to encourage our wider community, including Para Kore's audience and local schools, in Kaupapa Māori brand auditing. This expanded the reach of our methodology and led to young citizen scientists using their own data to engage with residents and councils.

We continued to host regular brand audits between January and July 2022, usually one or two per month. I continued to work closely with Pam on most of these audits as we were developing a close working relationship built on our shared passion for kaitiakitanga and Kaupapa Māori. Learning from her expertise in practice was also extremely rewarding (and fun)<sup>18</sup>. With this ethos as the basis of our brand auditing methodology, we were able to mobilise brand auditors in our kaupapa of plastics pollution mitigation, share the knowledge we were gaining, and discuss ways of taking collective action on plastics pollution. We covered many different areas, including various tributaries of the Whau including Wai Tahurangi (Avondale Stream) and several other Whau-side public spaces.

Brand auditors included people from all ages, cultures, and walks of life: older kaitiaki including one sprightly man in his 70s; student researchers; children with their parents and teachers; and everyone in between. Pam and I soon understood that these initiatives were less about quantity of volunteers and more about sharing an important kaupapa and the relationships we built during the brand auditing process. Sometimes it would be just Pam and I out doing an audit. These moments allowed Pam and I to converse more deeply about our motivations and intentions with this mahi (work) as well as our personal lives. Being less distracted by volunteers, we were also able to engage more closely with the Whau and all the beings that live there. This reminded me of why whakawhanaungatanga is a core element of Kaupapa Māori research, as it takes us out of the internal and theoretical mindset and back down to Earth, to focus on the forms of relationality and materiality present within our research spaces. As such, Kaupapa Māori citizen science and especially brand auditing can be understood as a form of whakawhanaungatanga with our Taiao.

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<sup>18</sup> Ngā mihi nui Pam, I could not have done this without you!

**Figure 13**

*Pam and I Searching for Plastics on the Whau Riverside.*



**Figure 14**

*The Haul from our First Brand Audit in 2022.*



## Conclusion

Like the Awa, our adaptable and fluid approach to Kaupapa Māori citizen science recognises the complex reality of plastics pollution at the Whau, wherein politics, society, and culture interplay in a meshwork of relationships. Through critical reflection of the power structures present in anthropology and dominant science, this chapter highlights the need to further decolonise anthropology while incorporating culturally relevant methodologies if/when appropriate. Community-based ethnographic research like this is one way of working towards this Kaupapa.

By building a database identifying the corporations polluting the Whau, we aim to increase the Whau community's understanding of plastics pollution at the Whau and use this mātauranga to collectively act on plastics pollution. This methodological process serves to address the project's aim of co-creating a Kaupapa Māori citizen science methodology for plastics pollution research with the Whau community. This discussion has also highlighted Kaupapa Māori's focus on using research to motivate collective action in response to socio-ecological issues like plastics pollution (Jackson, 2015). In these constantly evolving research spaces, we hark back to the methods used by those before us; methods that are culturally safe and community-based, in accordance with tikanga and Kaupapa Māori. This way, our research can be reconceptualised as reciprocal rather than extractive, community-centric rather than institutionally led, and focus on actionable outcomes that are of benefit to our communities, rather than solely benefiting the researcher.

## III. TO THE MOANA

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### Introduction to Discussion

Finally we have reached the Moana: the vast expanse of water known throughout Te Moananui a Kiwa as ‘the great connector’. This is where the findings of this project come together to show what has been learned through this research journey.

The following chapters discuss the development of our community-based Kaupapa Māori citizen science methodology through thematic analysis of interviews with kaiāwhina and participant observation during brand audits. The first chapter explored how centring mātauranga Māori in this study has served to develop this methodology and build our understanding of plastics pollution at the Whau. The second chapter focuses on how our brand auditing methodology was adapted in practice through our research at the Whau and how we as a community could collectively respond. The third and final chapter focuses on connecting this research with the wider context of global plastics pollution and how these findings can motivate our communities to exert our kaitiakitanga and rangatiratanga in the protection of our Taiao.

These chapters emerge from the holistic worldview (whakapapa/systems thinking/meshwork theory) approach of Te Ao Māori that was consistently expressed by kaiāwhina. This has helped decolonise my own thought processes and understand the wider contexts in which colonialism, plastics pollution, and Kaupapa Māori citizen science exist. This interrelated understanding of the world was evident in how kaiāwhina responded to my interview questions. For instance, when asked a question specifically about plastics pollution, kaiāwhina would often lead the discussion towards seemingly tangential topics. Rather than considering these conversations peripherally, I understood that their responses represented a worldview in which specific issues like plastics pollution cannot be considered in isolation. It proved vital that plastics pollution is understood as inherently connected to wider societal movements, structures, and other socio-ecological challenges like climate change and biodiversity loss. Similarly, kaiāwhina recognised that many of these issues have common overarching solutions: the minimisation of plastics production worldwide; keeping fossil fuels in the ground; the development of zero waste and toxic-free circular economies; and the empowerment of communities and particularly rangatahi (youth) through education and strong social support systems.

# **1. Leading plastics pollution research with kaitiakitanga, kotahitanga, and rangatiratanga**

## **Introduction**

Throughout this research, it has been clear that kaiāwhina understand the colonisation of Māori people, language, worldviews, and territories as a major contributor to the degradation of Aotearoa's socio-ecological environment. The inherent connection between dominant, oppressive, and extractive societal systems and the perpetuation of plastics pollution, climate change, and biodiversity loss were widely understood, assumed, and discussed during interviews, brand auditing, and online community engagements. These dominant systems, which have been forcibly implemented in Aotearoa and throughout the colonised world over the past several centuries, were unanimously seen as causing widespread and intergenerational harm on each the social, spiritual, and biophysical worlds of Māori, as with colonised Indigenous Peoples elsewhere. Reckoning with the intergenerational impacts of these processes and creating space to reclaim and reconnect with Te Ao Māori proved to be a key concern for kaiāwhina. While kaiāwhina recognised that ecological degradation impacts all people and beings, they drew attention to the fact that Māori and Pasifika communities are disproportionately harmed by socio-ecological issues. It became evident that these processes have continuously positioned marginalised peoples, including Māori, as victims of these prejudiced and oppressive power structures.

Despite the often-overwhelming sense of past, present, and impending loss that permeates discussions around colonialism and these interconnected ecological crises, kaiāwhina rarely expressed anger or bitterness. Each person demonstrated in their own way the importance of maintaining hope, realistic positivity, and educated collective action to drive societal change that purposefully addresses pollution and its multifarious socio-ecological implications. Kaiāwhina viewed Indigenous leadership in addressing these interconnected crises as vital for ensuring holistic and locally contextualised solutions are achieved. Kaiāwhina frequently emphasised that Indigenous leadership and representation is not solely about the functional benefits of thinking and acting from/with Indigenous concepts, values, and tikanga, but is an issue of cultural equity and creating space for them in spaces that have traditionally been monocultural, ethnocentric, and even hostile to Māori and other Indigenous Peoples. This includes the decolonisation of plastics pollution science, a key concern of this research.

Three key Māori concepts emerged as important guiding principles for approaching plastics pollution with Kaupapa Māori: kaitiakitanga (intergenerational responsibility); kotahitanga (oneness, unity, solidarity); and rangatiratanga (self-determination, autonomy, agency). These concepts are inextricable, overlap conceptually, and can have different meanings in different contexts. Nevertheless, my working definitions of these terms reflect the understandings provided by kaiāwhina specifically in relation to addressing plastics pollution and other socio-ecological crises. Thinking and 'being' with these concepts is a way of 'decolonising the mind' (Smith, 1999) and thereby shifting from ideological assumptions that may ultimately be oppressive, individualistic, and/or socio-ecologically harmful, towards a culture of sustainable and reciprocal relationality. This chapter explores how each of these concepts is understood within this particular dynamic, with the aim of understanding and responding to plastics pollution holistically, effectively, and equitably. This analysis also serves to inform and expand upon the Kaupapa Māori citizen science methodology developed through this research.

### **Kaitiakitanga**

Kaitiakitanga is one of the most widespread and politicised of all Māori concepts, evidenced by the many references to 'kaitiakitanga' in policy, government, industry, conservation, and civil society. In essence, kaitiakitanga describes an intergenerational tikanga-based system of socio-ecological and cultural guardianship. Kaitiakitanga entails an understanding of the responsibilities that both individuals and communities have to guard and preserve our Taiao which, in turn, brings us sustenance. This includes kai (food), wai (water), culture, and mātauranga.

In the academic literature, kaitiakitanga is often loosely defined as a Māori approach to resource management (Kawharu, 2000) or "a way in which Māori manage the natural environment based on Māori worldviews" (Walker et al., 2019, p. 2). However, several kaiāwhina described this common understanding as limited as it does not acknowledge that kaitiakitanga extends beyond the biophysical and implies a sense of collective, cultural, spiritual, and intersubjective responsibility between humans and other beings. This is a notion that further reveals the inseparability between kaitiakitanga, kotahitanga, and rangatiratanga.

Kaitiakitanga also describes an active, rather than a passive, relationship between subjects. A kaitiaki, therefore, is someone/thing<sup>19</sup> that 'carries out' (kai-) guardianship (tiaki) (Royal, 2007b).

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<sup>19</sup> See earlier discussion on anthropocentrism in the English language on page 14.

Te Kaurinui conceives of kaitiaki as someone/thing “that’s taking urgency: something that’s taking a position which gives a positive effect to the overall relationships amongst the ecosystem.” This understanding embeds the knowledge that our well-being and survival as individuals is dependent upon the well-being of all that lives ‘around’ us in a mutualistic interdependence. Kaiāwhina such as Te Kaurinui and Hollie expressed that both humans and other beings can be a kaitiaki for a particular whānau, community, or environment. Te Kaurinui expressed that this means kaitiaki can be some-‘thing’ that is usually considered inert in Western ontologies, such as a prominent boulder on a shoreline that serves as a visual indicator providing critical information about the incoming and outgoing tides for local divers and fishers.

### *Kaitiakitanga and plastics pollution*

As with many Indigenous concepts, kaitiakitanga is best (and perhaps only) understood in context with relation to the tikanga and whakapapa of the place in which it is enacted. Several kaiāwhina spoke to this understanding of kaitiakitanga in our kōrero, with Hollie stating,

There’s no one kaitiakitanga for all of New Zealand. It changes depending on where you are and what environment you’re working in. You can’t disconnect it from the tikanga of that place.

This is because local tikanga integrates local mātauranga about the whakapapa of a given place, providing critical context and authority for any potential act of kaitiakitanga. Without this context, we can end up with linear economic systems that extract from our Taiao without reciprocation and pollute without remediation. As kaitiakitanga aims to ‘give a positive effect to the overall relationships amongst the ecosystem’, systems that pollute by design can be seen as ideologically opposed to kaitiakitanga and ecological responsibility. This is where NZ’s capitalist economy and the wider international economic system stands today: a deregulated linear economy based on neoliberal principles of self-interest and individualisation, in which pollution has become the final and necessary stage in maintaining a system of extraction, production, consumption, and pollution. The health of our planet and people are not prioritised within this system, least of all our most vulnerable/targeted communities. The plastics economy is the largest and most linear global economy for synthetic materials, demonstrating the importance of shifting dominant material culture away from plastics.

Kaiāwhina expressed that kaitiakitanga provides a guiding ethos with which to reconceive our societal priorities. In the same way that NZ law recognises abuse in human relationships as

immoral, kaitiakitanga recognises that we cannot abuse our privileged access to resources (such as air, water, or food) by abusing our Taiao through pollution and overexploitation. Kaiāwhina recognised that kaitiakitanga can be expressed in many forms, such as radically reducing plastics production and consumption and minimising waste, while ensuring that any waste generated is disposed of appropriately. Importantly, kaitiakitanga emphasises a systems approach to pollution mitigation that involves unified, collective responsibility, rather than individual or household-based responsibility. This holistic approach rejects false solutions such as landfilling, downcycling<sup>20</sup>, and incineration, which enable the continued production of inherently dangerous materials like plastics (Changing Markets Foundation, 2021). Relying on current recycling systems alone is not enough, especially considering that the mixing of materials and chemical compounds during recycling process can make waste more toxic (Brosché et al., 2021; Pisharody et al., 2022).

Stymying plastic production at the source is a proactive approach to pollution mitigation that is one of the primary goals of BFFP's brand audit methodology. Kaiāwhina also recognised the need to urgently restrict plastic production, importation, commercial availability, and consumption in each local, national, and international contexts if we are to prevent further plastics pollution. This requires a collective sense of ecological responsibility, interdependence, and united action, as has previously been seen in the 1986 international moratorium on whaling, or Aotearoa's ongoing stance as a nuclear-free nation. Accordingly, building our collective awareness of the need to decisively reduce the global production of plastics is key for mitigating further plastics pollution.

The call for a legally-binding global treaty that restricts plastics production at the source has grown louder in recent years. This move was directed by the global scientific community and politically-active citizens, who presented petitions totalling over 2.2 million signatures to the United Nations Environmental Assembly (UNEA-5.2) in March 2022 (World Wide Fund For Nature, 2022). Representatives from all 175 member states unanimously agreed to a legally-binding treaty to prevent plastics pollution, to be finalised by 2024 (ibid.). This was a pivotal moment in the movement to end plastics pollution, yet it remains our responsibility as kaitiaki, researchers, and active citizens to ensure that our governmental systems and industries commit to the minimisation of plastic production and pollution in practice.

### *Intergenerational responsibility*

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<sup>20</sup> Downcycling is a common recycling practice that involves breaking items down into their constituent elements or materials. This usually results in a product of lower value, thereby increasing demand for the production of (often cheaper/subsidised) virgin plastics.

The protection and intergenerational exchange of Indigenous and traditional knowledge and cultural customs such as kaitiakitanga was widely viewed as essential for developing and maintaining a sustainable society for Aotearoa. This includes the development of a zero-waste circular economy, free of all unnecessary plastics and other toxic materials. For Carla and Juressa, living and leading with kaitiakitanga is an important responsibility in both their professional and home lives, particularly as parents of young children. Carla sees this transgenerational passing of kaitiakitanga as critical for preserving our Taiao for the next generation, as the systematic generation of pollution can only be avoided when we “stand in our place and take responsibility as much as we can for what’s happening.”

In our kōrero, Carla described her experience of sharing kaitiakitanga with her tamariki (children) during a waste-picking walk around their local area. While standing at a traffic light on their way home with bags full of waste, people wound down their car windows and commented, “Good on you guys! That’s so good to see.” As Carla tells her tamariki, “They might not get out of their car and pick up rubbish, but they’re going to think the next time they were going to throw something out of their car.” This is one instance of leading with an ethic of kaitiakitanga and understanding that our actions today affect the world for generations after we are gone, so we should act with ecological and intergenerational responsibility foregrounded.

The understanding of kaitiakitanga as an intergenerational responsibility was widely seen by kaiāwhina as an important ethical foundation for the ongoing protection and maintenance of the mauri, mana, and hau (vitality) of our Taiao. Each kaiāwhina recognised that Aotearoa’s collective sense of intergenerational responsibility has been diminished by the neoliberal, capitalist, and colonial ideologies (including reductionism, extractivism, and anthropocentrism) that dominate our society today. These ideological influences were seen as causing our communities to become more competitive, individualistic, and disconnected from the real socio-ecological impacts of the international linear economy which provides human societies with an unnecessarily vast range of plastic-wrapped consumer choices. For example, the hyperconsumption of materials such as plastics for food packaging has increased consumer reliance on international systems that require more energy, water, and labour to maintain compared to localised systems. This was seen as directly resulting in more pollution generated per person/household/country, perpetuating societal addiction to material consumption, and leading to further waste and pollution.

All kaiāwhina discussed the need to return to traditional and Indigenous ways of relating and being, which is common in Māori discourse around ecological restoration and behaviour change.

We also need to use our mātauranga in innovative ways that responds to the challenges of our time, while working to regenerate our Taiao. When I asked Juressa about what kaitiakitanga means to her on a personal level, she said,

Kaitiakitanga as it relates to plastic pollution means being able to use our own mātauranga and our own tikanga in the ways that our tūpuna lived, as a guide or an example of how we can mitigate plastic pollution, end plastic pollution, stop plastic production at the source.

Other researchers (Parsons et al., 2021, p. 380) working with kaitiaki in River-based contexts have also discussed the need to think intergenerationally:

The intergenerational dimension of river restoration is key to how [Māori] conceptualised not only restoration but also environmental justice. Issues of climate change, biodiversity loss, environmental degradation, and pollution all bring attention to the longer-term future, and questions about time and intergenerational responsibilities, and river restoration practitioners frame their work in terms of their intergenerational obligations to their Atua (gods), tūpuna (ancestors), and their kin (both human and more-than-human, past, living, and future generations), which includes the rivers and lands in which they live and work.

Kaiāwhina emphasised the importance of changing the way resources and our Taiao are related to and engaged with. This involves a review of our current systems, wherein entitlement to natural resources for anthropocentric purposes is largely assumed without consideration for the environmental repercussions of extractive, energy-intensive, and waste-producing economic systems.

### *Living slowly, slowing down*

Many kaiāwhina discussed how recognising the urgency of our current circumstances and acting accordingly is part of our responsibility as kaitiaki. Carla sees this as an “individual responsibility in affecting [the] change” we want to see, whether that is calling for increased corporate regulation, minimising the use of plastics, toxicants, and fossil fuels, or intentionally slowing down our lives and living more communally. ‘Slowing down’ our lives and consumption habits may help us re-prioritise the care and repair of our household items and consumables, to ensure their longevity and minimise unnecessary consumption. In this sense, Juressa referred to

Kaitiakitanga ... as slowing down the way that I live and behave ... being a bit more careful and gentle in the way I live and in the way I do things ... thinking about the impact ... Ultimately that's what I want to do, just to slow things down and to be a bit more considered in the way that I move through the world...

We don't need to be buying new things, owning everything. We can be living a bit gentler, living a bit slower, sharing things, having communal things that we share with our community or our neighbours or our family.

Living more slowly, with more intention and consideration for the impacts of our actions, may be one of the primary ways that we can work against the normalised hyperstimulation and hyperconsumption of many modern societies. Carla commented on the disconnection between the capitalist values of the 'corporate world' and her own personal values:

Having come from my previous life which was really corporate focussed, and it was all about return to shareholder and how much margin you were making and sales and all that, I wouldn't change [what I do now] for all the money in the world. You quickly realise how completely irrelevant all that other stuff is. And you quickly realise that all you're doing is pushing a product on people that they don't actually need.

This speaks to single-use and disposable material culture, which has prioritised momentary convenience and individual ownership over preventing the ecological harm caused by these conveniences. Several kaiāwhina noted that when they or their parents were younger, plastics were not normalised nor widely available. This demonstrates that a world without unnecessary plastics existed only a short time ago, within a generation or two. Returning to a similar way of being was widely expressed as a desirable and effective solution to plastics pollution. Re-normalising the non-plastic materials and reuse/refill systems that past generations had in place (e.g. glass bottle exchanges) honours the ingenuity of our predecessors in the creation of systems that protect our descendants.

Kaitiakitanga teaches us that our right to consume natural resources is not one-sided and comes with an obligation to reciprocate and regenerate that which we consume. However, certain narratives around personal responsibility are effectively misleading propaganda, such as the invention of personal carbon footprints by BP in 2004 to redirect blame for pollution and climate change onto consumers (Kaufman, 2021). Still, Te Kaurinui argues that "whatever anyone does in this world," particularly energy-intensive activities like air travel, there should be an obligation

“to counterbalance the environmental impact.” This should, however, be premised on collective rather than individual responsibility. For instance, governments and communities could further invest in carbon sinks, such as seaweed farms and native forest regeneration, to help relieve the impact of our collective consumption, especially as society transitions away from fossil fuels. However, any such actions do not replace the need for structural change and a significant reduction in plastics production.

The core takeaway raised in this discussion is that when humans recognise their rights, roles, and responsibilities in relation to the world around them, we can create systems that aim to protect and preserve the health and well-being of our interdependent communities across generations. This is a fundamental tenet of many Indigenous ontological systems, which led to the intergenerational success of the many Indigenous societies that survived and thrived in their territories for thousands of years before colonisation.

### **Kotahitanga**

Kotahitanga describes “unity, togetherness, solidarity, collective action” (Te Aka Māori Dictionary, n.d.) and is another highly politicised term in Aotearoa (Kawharu, 1992). On a fundamental level, I understand kotahitanga as a sense of oneness with the Taiao, which comes with an understanding that all things (landscapes, organisms, phenomena) are interrelated, interdependent, and inseparable. In socio-cultural contexts, kotahitanga can describe the ethos of an activity, process, or movement that reflects this understanding of mutual interdependence, and acts in terms of collaboration and reciprocation while recognising privilege and bias. This understanding of kotahitanga has been informed by my kōrero with kaiāwhina.

All kaiāwhina saw collective empowerment and unity through whakawhanaungatanga, community education, and open communication between communities, industry, and policymakers as essential for holistically and effectively addressing plastics pollution. Here, we can also see the inherent connection between kotahitanga and rangatiratanga, as articulated by Hollie:

I was part of this Māori leadership group ... and one of the matua was talking about the kupu ‘tika’. He described it as doing what’s right, and what’s right is what leads to the mutual rising of the collective. To me, that’s that kind of thinking where there’s no such thing as enjoying the fruits of your labour if your whānau and friends aren’t there with you. That rising has to be mutual.

It is also worth noting that I conducted these interviews near the end of Tāmaki’s four-month lockdown in late 2021. It was clear that the difficult conditions created by a global pandemic have undoubtedly affected Aotearoa’s sense of social cohesion and sense of kotahitanga. Divisive politics have reinforced existing socio-economic inequities that cause further social dysfunction. These tensions have become exacerbated in what Ngata (2021b) has described as the Age of Misinformation. Misinformation and disinformation have been particularly dangerous during the COVID-19 pandemic and has increased Māori and other Indigenous Peoples’ already disproportionate risk of infection and death (Ngata, 2021b). Mis/disinformation has caused tears in Aotearoa’s social fabric, as we try to balance our own survival, freedoms, and familial obligations against the power of pseudo-scientific ideologies aiming to distress, oppress, and create dysfunction. My kaiāwhina and I both viewed the re-stitching of our social fabric as vital in our collective response to socio-ecological challenges like plastics pollution. Thus, re-generating kotahitanga emerged as both a research priority and a collective responsibility.

#### *Recognising inequity, privilege, and positionality*

One major ethic that underpins this research and ethnographic endeavours more generally is a recognition of the inequities and privileges in any given relationship or situation. Through Hollie, I learned of the following quote by Aotearoa-based educator Kate Hall (@ethicallykate on social media): “It’s a privilege to live within your values [as] our systems do not allow for everyone to live sustainably; they leave the most vulnerable behind” (Hall, 2021). This is a comment on identity politics (a rather individualistic, identity-focused approach to political engagement), which has blossomed in the post-Internet era. While these identities often represent benevolent intentions, they can be marginalising if/when people expect other people to live according to their values, regardless of their level of privilege or positionality.

Personally, I try my best to consume sustainably, but my choices are restricted by a lack of affordable non-plastic products (which are often more expensive than plastic products) and accessible low/zero waste and bulk-buy stores. That is okay, as Hall says: “You can still care about something deeply, while having to do what you have to do.” This is where individual responsibility for addressing pollution ought to be focused towards affecting systemic change (e.g. minimisation of plastic production and product stewardship policies) that can reshape our consumer choices and avoid the ethical dilemma of consuming unsustainably altogether. This is also one of the primary goals of Kaupapa Māori brand auditing.

The notion that ‘it is a privilege to live within your values’ is a reminder of how inequities manifest in ways that can reinforce harmful stereotypes surrounding pollution. Dirty, messy, inconsiderate, lazy, and uncivilised are all familiar adjectives used to describe native peoples (Hirschfelder & Molin, 2018, para. 19) that have also led some to question the intentions of Māori when ecologically harmful decisions are made. In multiple instances, kaiāwhina and I have heard the plastics usage of Māori fisheries used as an example of harmful environmental relations. Undoubtedly this is true, but it is not a Māori-specific problem as framed; it is a systemic issue throughout the fishing industry that has been acknowledged by the IUCN (2021) and other organisations addressing marine plastics pollution. Juressa spoke to this point, adding that Māori often have limited options with the means and modes of business available to them in the current system. Likewise, combating the socio-ecological injustices that were institutionalised through colonisation cannot always be prioritised when Māori are preoccupied with providing jobs for their communities and getting food on whānau tables. Kaiāwhina recognised that this is the reality for many Indigenous Peoples who are dealing with multiple fronts of dysfunction, oppression, and intergenerational trauma, while simultaneously trying to support their whānau and act as kaitiaki for our Taiao. It is therefore unfair to criticise people in such circumstances on a basis of perceived ineptitude, particularly when the critics are speaking from a place of privilege. Cultural and behavioural change must therefore be supported by accessible and affordable low/zero waste systems and product design.

## **Rangatiratanga**

The concept of rangatiratanga (self-determination, authority, agency) has a contentious past, particularly in relation to the ongoing debates surrounding its use in Te Tiriti o Waitangi to affirm the sovereignty and self-determination of Māori (Matike Mai Aotearoa, 2016). This discussion expands on this whakapapa with focus on contemporary conceptions of rangatiratanga in relation to collective action against socio-ecological challenges like plastics pollution and climate change. As these interconnected issues largely extend from problematic political decisions and the global influence of the petrochemical industry, civic action against these processes is increasingly necessary to collectively prevent further plastics pollution, climate change, and ecological degradation.

In our kōrero around action on plastics pollution, kaiāwhina expanded this understanding of rangatiratanga to a type of empowering, inclusive, and tikanga-based leadership, with ‘leadership’ perceived more as a role within a community more than a position within a hierarchy. Similarly, decision-making in Te Ao Māori is democratic and based upon group consensus (Smith

et al., 2021, p. 22). This is an important consideration for this Kaupapa Māori brand audit methodology and its focus on democratising and decolonising plastics pollution science. While this conception of rangatiratanga is not as widespread in academic literature, it is not new. As Te Kaurinui pointed out, the kupu 'rangatiratanga' can be interpreted based on its components:

Have you heard it broken up, ranga-tira? 'Ranga' is short for 'raranga', which is the interweave [of relationships], and 'tira' is usually a term used for 'group' or 'team'. How it was explained to me was that a rangatira isn't necessarily like the chief-chief, sometimes the rangatira is actually the coordinator. Someone who has the ability to interweave the relationships around them in order to form the team for a specific job, for a specific purpose. You're interweaving the people, the relationships, that are necessary to approach whatever that task is.

Te Kaurinui's insightful articulation of rangatiratanga demonstrates how this approach to leadership is centred within Māori tikanga and values, including kaitiakitanga and kotahitanga (Smith et al., n.d.). Recognition of each person's skillset, capacity, interests, and relationships before establishing roles within a team may seem self-evident; yet rangatiratanga as understood by my kaiāwhina, purposefully acknowledges privilege and aims to uplift those traditionally underrepresented, vulnerable, targeted, or otherwise disenfranchised. When discussing the role and potential of Kaupapa Māori citizen science, kaiāwhina frequently made connections with conservation/kaitiaki mahi and grassroots activism. These links provided wider context for how our Kaupapa Māori citizen science methodology could connect with and be informed by parallel movements towards ecological protection and Indigenous empowerment in Aotearoa.

### *Rangatiratanga and environmental mahi*

When I asked Hollie about rangatiratanga, she relayed a story about a Pākehā botanist she previously worked with. The botanist was contracted to do some weeding for a local Iwi and was asked to hire local Māori for the job. Hollie was slightly apprehensive that this request could be taken the wrong way, but the contractor quickly demonstrated their awareness of the power dynamics at play and expressed that "Tāngata Whenua are the best people to be doing environmental work on their land because they have a connection unlike others." They worked with Te Kaurinui to organise a team of local workers who would be paid an industry-standard hourly wage (rather than koha) for their mahi. On-the-job training would be provided. No previous experience required. And suddenly, five locals had an income to help support their whānau. When work began, they had karakia and mihi whakatau (welcome speech), and later

that day the contractor provided lunch for the crew. This working dynamic, awash with whakawhanaungatanga and respect for the Indigenous people of that place, was evidently memorable for both Hollie and Te Kaurinui as it was a starkly different experience to other Pākehā-Māori working relations, particularly in the conservation sphere. Te Kaurinui described the contractor as

...[a] real Treaty partner in the sense that he recognizes us as the mana whenua in whatever capacity that we have. We're just real people, you don't need to go all the way up to the big boy table and continue to talk about money and the theoretical stuff. Just put it into practice.

Hollie reiterated this sentiment, stating that: "To me, that's a Rangatira, someone who expresses those values and then makes a system that actually works". This understanding of rangatiratanga highlights how leadership functions in a community-focused social system. For Kaupapa Māori plastics pollution research, this has deep implications for who we choose to engage with through research, who and where we share our findings, as well as the reasons for which research is conducted in the first place.

#### *Rangatiratanga and the role of NGOs*

Recognition of the rangatiratanga and mana that Tāngata Whenua hold over their territories is fundamental in the actions taken (or not taken) by Greenpeace Aotearoa. Juressa noted that, in Iwi-led movements such as Protect Putiki, some people will ask: "Where is Greenpeace in this? Why aren't they doing anything?" However, Greenpeace Aotearoa intentionally avoid assuming leadership in these spaces as they:

...recognise that Ngāti Paoa ... have mana over [Pūtiki] bay, and they decide what actions are needed. They know that they have us in terms of our allyship. If there's something that we can do to help or offer to them then we will do that ... Generally speaking, it's better for these grassroots movements to be happening on the ground by those people themselves without our intervention... I think that's what [Greenpeace] can do, is to help amplify and support and ally with all those groups, particularly Iwi and Hapū led groups, and not try to take over that space.

Greenpeace Aotearoa's positionality as an allied non-Māori organisation means that they are wary of perpetuating colonial attitudes to power, control, and authority (rangatiratanga). This is in light of local and international instances in which non-Indigenous NGOs have caused further harm to Indigenous Peoples and their territories by 'taking over' Indigenous-led environmental

movements. In acknowledgement of their global power and influence, Juressa stated that Greenpeace: “have a responsibility to show non-Māori, Pakeha organisations, Tāngata Tiriti, how to approach [environmental issues] and be a good partner.” Greenpeace now aims to demonstrate for other NGOs that intersectional allyship means taking direction from Indigenous communities active in their spaces (marine, terrestrial, or otherwise), rather than co-opting and whitewashing the movement. Carla echoed this sentiment, stating that: “EcoMatters is not a Māori organisation, so it is very much about being really intentional in this space” by aligning with mana whenua and other groups working on the same kaupapa (issue), incorporating Te Ao Māori where possible, and critiquing the power dynamics evident in any colonised space. These are all essential processes in the decolonisation of environmental conservation and environmental NGOs more specifically, as we bring together the passion, expertise, and resources of each organisation, community, and individual to combat these interconnected crises. Considering citizen scientists and the brand audit community specifically are focussed on achieving societal change, interrogating our positionalities, affiliations, privileges, and responsibilities is a crucial part of creating an ethical research methodology.

### *The role of rangatahi*

Rangatahi (young people) are one of the most active groups in the fight against pollution, environmental degradation, and climate change, as they have the most to lose if extraordinary changes are not made now. After years of debate and performative and largely ineffective action by political parties across the world, humanity’s current trajectory is neither sustainable nor inspiring. This does not make for an atmosphere of hope and motivation; in fact, climate change is linked to an increase in depression, anxiety, and suicide (Cianconi, Betrò & Janiri, 2020), adding to Aotearoa’s already disproportionate rates of suicide amongst youth and Māori (Mental Health Foundation of New Zealand, 2022).

Hollie spoke of a friend’s experience working with rangatahi that involved creating artworks that represent their visions for the future. Some rangatahi commented, ‘What future? We’re all going to burn and die before we have a future.’ This lack of hope is not a symptom of teenage angst but a genuine response to the current state of our world, given the endless warnings from the scientific community and Indigenous Peoples alike that continue to be largely sidelined and avoided by dominant systems of power. In the academic literature, this has been described as ‘eco-anxiety’ or ‘climate anxiety’ and has been compared to the nuclear anxiety of the late 20<sup>th</sup> century (Pihkala, 2020). As ‘older’ rangatahi, Hollie and I agreed that “we haven’t given up hope as much as the next generation ... So our key role is to be hope givers ... We need to demonstrate,

role model [for younger people].” This became an important consideration for how and why we approached brand auditing, as active citizen science work such as this may help rangatahi cope with eco-anxiety through political action.

Considering their well-being and survival is at stake, rangatahi voices must also be represented in climate action and policy making. The importance of rangatahi involvement in policy making was identified in Matike Mai Aotearoa’s 2016 report, an instrumental document in the progression of Māori rights and rangatiratanga (self-determination). The report incorporated interviews with rangatahi from across the motu (country), who identified ecological restoration, pollution mitigation, food sovereignty and security, reclamation of traditional knowledge, and political transformation as key issues for rangatahi. The report states that rangatahi “strongly opposed harmful processes that compromised our natural environment, whenua, forests and waterways, like fracking and mining” (Matike Mai Aotearoa, 2016, p. 117), demonstrating that rangatahi widely understand the preservation of our Taiao as an urgent priority. Many rangatahi questioned the power dynamics of the NZ governmental system:

Who is it that actually controls our country? Is it really Pākehā or the Crown? Or is it actually foreign businesses? Why is [it] that we can only have a political say when we are 18? We can hold a driver's license and gun license at 16; be conscripted to go to war at 16, and consent to sex at 16; but we can't politically participate? Current system does not work and our rangatahi know it - why are changes not being made? (ibid., p. 95-96)

This shows both the political awareness of many rangatahi today, while highlighting the barriers preventing them from engaging in political decision-making. Everyone I have worked with during this research has echoed similar sentiments about youth and Indigenous leadership in pollution and climate action going forward. As rangatahi stated in Matike Mai Aotearoa’s (2016) report, “Ko tātau ngā rangatira o apōpō – we are the leaders of tomorrow!” (p. 118).

## **Conclusion**

This chapter has explored the potential benefits of leading plastics pollution research with the Māori concepts and values of kaitiakitanga, kotahitanga, and rangatiratanga. Working with these concepts in this anthropological research has highlighted the socio-political, cultural, and relational understandings of plastics pollution and citizen science that kaiāwhina view as essential for our collective responses. This has heavily informed the purpose, direction, and

development of our Kaupapa Māori brand audit methodology and this study's focus on finding holistic and effective responses to the plastics pollution crisis.

The worldwide perpetuation of dominant ontological systems and oppressive and extractive ideologies worldwide has meant that Indigenous worldviews to the contrary have been devalued, often through violent institutional suppression. This has perpetuated extractive and nonreciprocal, rather than regenerative and symbiotic, relationships throughout our Taiao, including in research practice. Likewise, the replacement of Indigenous economies with waste-producing linear economies via European imperial expansionism has resulted in the careless pollution of our entire planetary system, endangering all life on Earth. As such, kaiāwhina recognised that developing a society based on sustainability, that is, to create systems that prioritise the ongoing survival of all living beings over individualised and anthropocentric profit, requires both cultural and systemic transformation. As the literature has also acknowledged, kaiāwhina identified Indigenous and youth leadership as crucial for addressing the myriad of systemic issues that humanity faces today.

The three concepts discussed here - kaitiakitanga, kotahitanga, and rangatiratanga - provide mātauranga and guidance for the decolonisation of anthropological research as well as our socio-ecological relationships in response to plastics pollution, climate change, and other interconnected challenges. The decolonisation of research, lifestyles, and dominant social systems through collective action and increased Indigenous leadership, as seen in our brand audit methodology, may lead to the creation of a prosperous and abundant future, at a pivotal junction in history where collective inaction will undoubtedly have severe consequences.

## **2. Iteratively developing our Kaupapa Māori citizen science methodology alongside the Whau community**

### **Introduction**

Framing this citizen science methodology within Kaupapa Māori has served to contextualise the research within the local whakapapa of Te Wai Whau. This has helped me understand and work alongside the Whau and its relationships with local communities. This includes Te Kawerau ā Maki, local residents, workers, researchers, and ENGOs such as EcoMatters, Para Kore, and Greenpeace Aotearoa. Our Kaupapa Māori research framework provided a critical foundation of mātauranga Māori (including the concepts of kaitiakitanga, kotahitanga, and rangatiratanga) through which to constantly analyse our methodology and findings, while directing our intentions towards the protection of Te Wai Whau. This approach has been informed by conversations had during interviews and during brand audits at the Whau. This chapter therefore focuses on how our Kaupapa Māori brand auditing methodology was developed in the field alongside the Whau community. This iterative and fluid approach to the research has provided opportunities to build upon the methodology according to the relationships and mātauranga that emerged during brand audits, so that this methodology might best serve the Whau community.

### **Decolonising research through Kaupapa Māori citizen science**

Much has been written about the problematic whakapapa of dominant science, research, and academia and their role as a fundamental part of imperialist systems that oppress Indigenous Peoples (L. T. Smith, 1999; Liboiron, 2021). Kaupapa Māori emerged out of and in response to these realities, with the intention of creating transformative praxis that uplifts rather than oppresses Māori (G. H. Smith, 2005, p. 29). Kaupapa Māori ethnography and citizen science therefore necessarily entails an intention to create meaningful change for our communities. Hollie, who completed her own MA in social anthropology in 2015, noted that,

As soon as you bring Kaupapa Māori values to an anthropological project you also bring action, because it's no longer tika to do research for research's sake - there has to be an outcome which improves the situation being studied, that gives power to the vulnerable, that breaks down barriers to equality. And so I think it is perfect for environmental issues as there is always an associated action ... it can't be all hui and no dui.

Kaupapa Māori's focus on addressing inequality and empowering the vulnerable/targeted through the representation of Indigenous Peoples, worldviews, and methodologies is well

discussed in the literature. Kaiāwhina such as Robin, Pam, Hollie, and Te Kaurinui each recognised that as researchers generate, analyse, share, and assert authority over knowledge, they also have a responsibility to share their findings with communities in open and accessible ways.

Kaupapa Māori brand auditing has provided opportunities for community members around the Whau to personally connect with the Whau and its restoration. This embodied and practical approach to affecting systemic change proved valuable, as it helped kaiāwhina recognise their own rangatiratanga in responding to the systems that perpetuate plastics pollution. Several kaiāwhina have noted that this project has been more relatable and accessible compared to other projects that are often rife with technical language, or not so focussed on community engagement and the communication of findings to inform societal change. Still, there are distinct barriers that prevent people from further participation in dominant science. This presents equity issues as research and knowledge become inaccessible to people without certain types of education, limiting the potential for research to be socially, politically, and/or economically transformative. Juressa spoke to this, stating that

... the purpose of every piece of research should be to reach all people, because otherwise it excludes us, and we don't buy into it, and we don't care about it, and we're not going to do it, and it doesn't work for us.

So long as dominant academic systems continue to perpetuate harmful ideology, methodologies, and outcomes through their research, there will be a need for critical, decolonial, anticolonial, and Indigenous-centric analysis. Given the imperial whakapapa of dominant science, there is a continuous and ongoing need to critique the assumptions, ideological foundation, and power dynamics present within its systems (L. T. Smith, 1999; G. H. Smith, 2003).

Clearly, Māori and other Indigenous academics recognise the potential value of dominant science, or we would not participate in it. This is particularly evident in the social sciences, wherein there is a strong representation of Māori scholarship. Hollie discussed how ethnographic methods can be helpful in revealing the power structures underlying science, policy, and society. However, as Hollie reiterated, contemporary researchers in Aotearoa using anthropological theories and methods must be critical of anthropology's underlying power structures and historical and present-day relationships with marginalised communities through disciplinary reflexivity (Whitaker & Atkinson, 2021). Research methods and intentions should be viewed critically through a Kaupapa Māori lens before being used in research with Māori communities, to mitigate the risk of harm and review their positionality in a Māori-centric context.

Hollie shared the following whakaaro of Audre Lorde as we discussed the potential of changing institutions (scientific, governmental, or otherwise) from within: ‘The master’s tools will never dismantle the master’s house’. In full context, Lorde here is reflecting on the difficulties of her lived experiences as a Black lesbian scholar during the rise of White, heteronormative feminism:

... survival is not an academic skill. It is learning how to stand alone, unpopular and sometimes reviled, and how to make common cause with those others identified as outside the structures in order to define and seek a world in which we can all flourish. It is learning how to take our differences and make them strengths. For the master’s tools will never dismantle the master’s house. They may allow us temporarily to beat him at his own game, but they will never enable us to bring about genuine change (Lorde, 1984, para. 8).

What exactly the ‘master’s tools’ are is a matter of context and interpretation, dependent on where and how Lorde’s wisdom is applied. In addressing plastics pollution through Kaupapa Māori citizen science, it reminds us of the importance of prioritising alternative, Indigenous worldviews and community engagement in achieving societal transformation through our research. The normalisation of dominant worldviews and a lack of concern for engaging with and defending human communities through dominant science has given researchers, Indigenous or otherwise, a choice. As Koka Linda Tuhiwai Smith stated on 27 March 2022 (Te Tiriti Based Futures, 2022), “You can cruise, you can pretend that you’re above all of this, that you’re just a researcher, you’re just a teacher, you just do theory and you don’t get your hands dirty in practice.” However, in doing so you relinquish your obligations to your community and our Taiao and perpetuate harmful colonial ideology. That is the choice every researcher makes, as Mary H. O’Brien (1993) famously said: “Being a scientist means taking sides” (p. 706).

### **Conceptualising Kaupapa Māori brand auditing**

While the literature on Kaupapa Māori citizen science is limited, there are some examples of Māori-led citizen science initiatives that inspired our methodological development. The incorporation of mātauranga Māori and kaitiakitanga in projects such as Te Kura Moana (New Zealand Ministry of Education, 2020) helped shape my initial conceptions of what Kaupapa Māori citizen science at the Whau could look like. However, it is crucial to remember that Kaupapa Māori and anticolonial research both recognise that no methodology is universally appropriate. This means that our Kaupapa Māori citizen science methodology has been developed for specific use at the Whau and may not be directly appropriate for use in other research settings. The

potential for adapting this methodology for use in other Indigenous research contexts is discussed later in this chapter.

Kaupapa Māori brand auditing is best understood not as individual events but rather an ongoing process of enacting kaitiakitanga and rangatiratanga. Kaupapa Māori brand auditing provides us with valuable data to inform potential action against polluters, while raising our communal mātauranga, mana, mauri and sense of kotahitanga, while giving back to the Taiao which keeps all of us alive. As with other brand auditors, our approach emphasises the difference between individual and collective responsibilities within current systems of power, as different people and institutions have varying degrees of power and influence when addressing plastics pollution. While corporations and governments largely control our consumer choices and therefore our plastic consumption, many consumers have yet to question the socio-ecological impacts of currently dominant ways of consumption. This allows corporations to continue increasing plastics production exponentially and simultaneously generating pollution.

This Kaupapa Māori citizen science methodology differs from dominant citizen science in several fundamental ways. This includes our mātauranga Māori-informed conception of what the words ‘citizen’ and ‘science’ mean in the Whau context. Māori, like other Indigenous Peoples, first and foremost understand ourselves as ‘citizens’, or rather kaitiaki, of our Taiao. This positionality shows how in Te Ao Māori, humans are not separate from the ‘natural world’; rather we are one species in a vast meshwork of socio-ecological relationships that are inseparable and interdependent (Royal, 2007a; 2007c; Rangahau, n.d.). Secondly, in our daily lives we are part of a democratic political system, however imbalanced and biased this system may be. Many of us exercise our rangatiratanga by participating in this political system, particularly by sharing our research findings with policymakers, industry, and fellow citizens.

Kaupapa Māori notions of how science should be conducted also differ from common understandings in dominant citizen science. For Māori, the mātauranga collected through scientific research “only has real purpose and meaning when it’s all stitched together” (Matamua, 2022, para. 2) and connected to whakapapa and in many cases, political rangatiratanga. As Mahuika (2008) discussed, the commonalities between Kaupapa Māori and anticolonial science draw attention to the ongoing impacts of colonialism on research and policy, as well as in the perpetuation of socio-ecological challenges like plastics pollution. While citizen science typically takes place outside of dominant scientific institutions, citizen science methodologies are often transposed from dominant science without adaptation for specific socio-cultural and political contexts (e.g. BFFP’s standardised brand audit methodology). This means that Kaupapa Māori citizen scientists have a responsibility to critique the often colonial/colonised scientific and

political spaces in which we work. While some citizen scientists, such as the aforementioned Te Kura Moana project (New Zealand Ministry of Education, 2020), recognised the value of Indigenous sciences and traditional knowledge for their research, more do not, including most brand auditors. This creates an imbalance within the citizen science community that can replicate the harmful power dynamics of dominant science. Accordingly, it was vital that our citizen science methodology was centred within Kaupapa Māori from the beginning. This ensured that our research approach was respectful of the whakapapa of the Whau and Te Kawerau ā Maki's tikanga. This remained critical throughout the research process, especially during data analysis and discussions around potential actions and outcomes from the research.

### **The power of language**

One theme that emerged consistently throughout all interviews, brand audits, and online engagements is the power of language for decolonising minds and recentring worldviews within Te Ao Māori. Kaiāwhina frequently noted how learning, understanding, and using Te Reo Māori leads to the potential for new connections and insight when dealing with socio-ecological issues like plastics pollution. Humankind's unique capacity for spoken language has been described by Kimmerer (2013) as our gift that we ought to use in ways that support the well-being of our Taiao. Through language, whether in the form of storytelling, whakataukī (proverbs), or waiata (song), we express our worldviews and ideas about our relationships with the world. This influences how we engage with each other and our physical surroundings. Because of this, kaiāwhina saw the use of Te Reo Māori as an essential facet of Kaupapa Māori research, which encouraged me to increase my use of Te Reo whenever and wherever possible. In our collaborative research spaces this has helped encourage fellow citizen scientists, particularly those less familiar with Te Reo, to give it a try in a relaxed, safe, and supportive environment.

The cultural significance of Te Reo Māori for contextualising socio-ecological relations cannot be overstated. Juressa commented on the connections between Te Reo Māori and Te Ao Māori's holistic, circular worldview:

The way we lived, we lived a circular life - everything came from the Earth and went back to the Earth. The way we have the same kupu for land and placenta ... pregnancy and sub-tribe. That right there is the circularity.

As Juressa states, several kupu in Te Reo have multiple meanings that demonstrate the links Māori recognise between humans and our Lands: 'Whenua' means both 'Land' and 'placenta', in

recognition of our descent from the Land as well as its nourishing and maternal qualities; 'hapū' refers to both pregnancy and the traditional extended whānau structure (sub-tribe).

Te Reo Māori developed as a unique language in Aotearoa over the past millennia. Te Reo shares whakapapa with many other Polynesian languages throughout Te Moananui a Kiwa (Higgins & Keane, 2013) and like them, Te Reo developed through culturally-specific relationships with our Taiao. As with all languages, Te Reo continues to develop in response to societal and cultural developments (Te Tai, 2021). It is Te Reo's foundation in ecological relationality that provides the framework for understanding how all animals, plants, spirits, and landscapes are interrelated, as well as our rights and responsibilities in relation to the world. Despite Te Reo Māori being the native language of Aotearoa, colonialism has made English the current de facto language of everyday life, media, policy, and academia. Language revival efforts over recent decades have helped revitalise Te Reo and the language is becoming increasingly visible in contemporary Aotearoa society. Due to their different cultural origins, cross-cultural discourse between Te Reo Māori and English can be difficult, as some words and terminology are not directly translatable and/or lose important context upon translation. Increasing our use of Te Reo Māori is therefore integral for bringing alternative perspectives to Western-dominated spaces in science, policy, media, and daily life. As we developed our Kaupapa Māori citizen science methodology at the Whau, incorporating Te Reo through whakataukī, karakia (prayer), waiata and in general conversation became an important part of decolonising our minds as well as the research process.

### *Whakataukī*

Promoting cultural inclusivity in our workspaces also helps people consider important matters from a Māori perspective. One way of doing this is through whakataukī. As whakataukī contain moral teachings and tikanga, kaiāwhina such as Juressa utilise them to "switch her thinking from Pākehā thinking to Māori thinking, because I've grown up in a colonised environment." Doing so helps her provide a more grounded Te Ao Māori perspective in both her daily life and mahi with Greenpeace Aotearoa. Juressa also noted how whakataukī offer "the most practical way that [she] can share [Te Ao Māori] with [her] non-Māori colleagues", as they are often short sentences that contain a wealth of mātauranga. In our often fast-paced research contexts where we often had limited time to do our clean ups/brand audits, whakataukī were a simple way of sharing Te Reo and Te Ao Māori with other brand auditors.

### *Karakia*

Karakia were also widely understood as a vital way to connect ourselves as researchers with the spaces in which we were working. Beginning our brand audits with karakia acknowledges our places within our Taiao and thus serves to show respect for the beings in our research settings. In relation to her role as CEO of EcoMatters, Carla talks about how “intentionally opening all of our meetings with a karakia, and intentionally taking time to bless food if we’re sharing it together” creates a safe space for Māori and non-Māori to engage with Te Reo and Te Ao Māori. As with other kaiāwhina, Carla is well-aware that Te Ao Māori can be intimidating for both non-Māori and colonised Māori who have little experience in this cultural space. She states that “a really important message for your team if you want to bring them safely into this space [is that] you’ve also got to be so happy ... about making mistakes and not getting it right.” Creating this safe space for learning through karakia encourages people to engage with Te Reo Māori and discourages ‘Pākehā paralysis’: a phenomenon discussed in, but evidently not limited to, anthropological circles describing the avoidance of many Pākehā to engage with Te Ao Māori due to a perception that it is ‘too difficult’ (Citizen, 2020).

Kaiāwhina Hollie noted how the superficial use of Te Reo Māori without tikanga can lead to tokenism. However, when non-Māori genuinely understand their positionality in relation to Te Ao Māori, then using karakia is an appropriate way to create safe and inclusive working relationships. Juressa, on the other hand, voiced concern over using karakia in certain contexts, as it is a particularly personal and vulnerable way of expressing oneself through Te Reo Māori, stating:

I don’t always want to share [karakia] if I don’t think that the person or people I’m doing that with are ready to receive it. Sometimes my mind changes, ‘cause I always want it, but I’m unwilling to see it tokenised as well.

This hesitancy to see karakia tokenised and/or appropriated is a response to the reality that karakia are often used in otherwise non-Māori contexts to create a false sense of cultural inclusion. Due to the spiritual nature of karakia, using them as a form of Māori ‘window dressing’ in an otherwise Pākehā-centric environment is not just inappropriate, it can be very uncomfortable, especially when Māori are asked or expected to lead karakia for their non-Māori peers.

For our Kaupapa Māori research context, karakia offers an important way of joining brand auditors from various backgrounds in what has become a somewhat familiar format. As such,

situating ourselves within our physical and spiritual surroundings through karakia at the Whau was often an important part of our process.

### *Waiata*

Perhaps the most engaging and unifying form of Te Reo that many kaiāwhina mentioned is waiata. As Juressa pointed out, waiata can be a more relaxed, comfortable, and appropriate way of bringing Te Ao Māori into our lives and research contexts as it inevitably encourages people to stand up, sing, and dance. Music is an infectious, cross-cultural activity that most people, regardless of background, can participate in and relate to. Juressa discussed how...

[waiata are] a really safe place to start to practice your Te Reo, 'cause you're learning a song and not only do you not know the song but you might not know the words or the pronunciation. So you're learning all that and at the same time we've got someone learning on guitar and we might have someone learning on piano. That's a really open space, so I find that music and waiata is a really good way to bring [Te Ao Māori] into the organisation.

For both Carla at EcoMatters and for Juressa at Greenpeace Aotearoa, singing (and dancing) provides a practical way in which Te Reo Māori can be used to build both a sense of kotahitanga and to soothe people's inhibitions about engaging with Te Ao Māori. Carla recognised that some people, particularly those of older generations, are less comfortable with Te Ao Māori as their experiences with it are limited to marae visits, where there are strict protocols in place. Carla often uses waiata as a more casual and informal way of introducing people to Te Ao Māori that removes some of that internalised fear and caution.

Several kaiāwhina described generating a sense of kotahitanga as key for the well-being and success of any collective or team environment. Juressa and Carla both described waiata (song/singing) as an appropriate, engaging, and adaptable mode of sharing Te Ao Māori and Te Reo Māori with non-Māori colleagues in their workplaces at Greenpeace Aotearoa and EcoMatters, respectively. Incorporating waiata in the workplace was described as a more open and less intimidating way for non-Māori to participate in Te Ao Māori, compared with more formal modes such as karakia (prayer/incantation), which has become more common in professional settings as Te Ao Māori becomes more normalised. As Juressa stated: "everyone sings and you can't not get into a song." Carla stated that waiata have become a core part of her leadership approach at EcoMatters, despite only having a small minority of Māori employees: "It's such a feeling of team and togetherness that you can get through waiata and through music as a

whole. It brings people together. It creates such a good dynamic.” This led me to include waiata in our Kaupapa Māori brand auditing methodology to generate a sense of kotahitanga and as a way of sharing Te Reo and Te Ao Māori in our research setting.

Normalising Te Reo Māori by using whakataukī, karakia and waiata in our citizen science methodology has become a critical aspect of this research. Using Te Reo Māori helps us honour the whakapapa of the Whenua on which we stand, live, and work, while creating opportunities for cross-cultural engagement in what can otherwise be very rigid and ethnocentric contexts. Using Te Reo Māori recalls the ethics and tikanga, the ways of living and being, that our ancestors saw as critical for survival. This provides teachings about the decolonisation of all aspects of our lives, from our households and workspaces to our research practices and relationships with our Taiao.

### **Working alongside our local Taiao**

As Kaupapa Māori brand auditing requires us to situate ourselves within our research spaces, we make sure to ‘check-in’ with the local Taiao before commencing an audit. This includes assessing the weather forecast (also an important safety consideration), checking tidal patterns, and reviewing the maramataka (Māori lunar calendar). This helps us understand the wider environmental context of our workspaces so we can engage with the Whau safely and appropriately. Every audit also begins with mihi whakatau, including each person sharing a mihi or personal introduction. This helps to identify the relationships between each person involved with the research and is also an opportunity to share the motivations behind our actions at the Whau and share intentions and aspirations for the ongoing care of our Taiao. Beginning our research with this process helped to establish closer working relationships as citizen scientists and build community focus on the minimisation of plastics pollution at the Whau.

Working closely with Pam and the EcoMatters whānau helped connect this project with local community members, many of whom have been practising kaitiakitanga at the Whau for years and thus had crucial local knowledge to share with us. For instance, during one clean-up a local resident stopped by on his bicycle to encourage us on our clean-up efforts. He told us about his own experiences removing waste from the area and his concern for the Awa, as “there are a lot of contaminants in it, aye.” Having lived alongside the Whau since the 1970s, he recalled how part of the residential block adjacent to our clean-up site was built on top of a landfill. This is not uncommon throughout Tāmaki as many parks and buildings are built over landfills, including the EcoMatters headquarters. As you could still see the landfill’s exterior blocks on the riverside, we

wondered whether some of the waste we were removing had spilt over from the landfill, while questioning the logic of building landfills next to tidal waterways.

This local context is critical as the NZ government continues to view landfills as a ‘solution’ to Aotearoa’s immense waste problem, while from our perspective, landfilling our own Whenua with more and more toxic contaminants feels like a literal manifestation of the idiom ‘digging our own graves’. Similarly, as the Whau is a tidal estuary, many of the plastics found may have come from overseas via ocean currents (another example of waste colonialism), making their pathways into the Awa difficult to identify. Recognising this emphasises how plastics pollution is a transboundary issue that affects our global ecosystems, thus requiring an approach of global collaboration and systemic transformation towards a zero-waste and circular economy.

Many brand auditors following BFFP’s brand audit methodology focus solely on collecting plastics during brand audits, as these are the data-providing items most needed for action against polluting companies. Kaupapa Māori brand auditing, however, involves a relationship with our Taiao that extends beyond research and into our responsibilities as kaitiaki. As such, we extended our brand audit methodology to include removing all kinds of pollutants from the Whau possible, including glass, rubber, fabrics, and other non-plastic materials:

**Figure 15**

*Sack Full of Mixed-material Waste Collected During a Brand Audit in January 2022.*



This adaptation was doubly important for our holistic methodology as many seemingly non-plastic items, including tin cans and cardboard packaging, are lined with a thin layer of plastic, making them effectively impossible to recycle within Aotearoa’s current recycling systems.

As our brand auditing research progressed, the realisation that we were dealing with waste from across space and time was profound. Many of the items found during audits were unbranded legacy plastics, which had been dumped in or alongside the Whau over the past several decades. Many of the plastics and heavy metals we found were discarded household items, including vacuums, kettles, countless tyres, electric fans, shoes, clothes, headphones, and other electronics including smartphones. It is difficult to imagine the level of contamination that these mixed material objects have emitted over several years spent half-submerged in the muddy sediment of the Whau.

As many of these objects had no visible branding, we chose to categorise them according to their purpose and material types. We hoped that we could at least identify which areas of our households and daily living could be better supported with recovery and repair systems to prevent further pollution. While our methodology generally understands plastics pollution as a symptom of our linear economy, it was evident that the items we were finding at the Whau had been purposely littered there. Many people made those decisions over many years. This highlights how our waste-producing culture has enabled people to disconnect from the true value of the materials and 'natural resources' that the items we consume are made from, as well as their impacts once they have been carelessly discarded into our Taiao. This motivated us to consider how we might work within the local communities by approaching residents and councils with our findings to communicate the need for repair, reuse, and recovery solutions that are physically and financially accessible, to prevent unnecessary littering and landfilling.

While brand auditing can undoubtedly be uncomfortable and disgusting as it involves wading through the toxic waste streams of an unsympathetic linear economic system, it was also impossible not to notice the innate beauty of our research site. Warmer days over summer were particularly lovely, with sunlight glancing off the Whau's surface and native birds singing quietly in the mangroves as we filled our bags with waste and chatted amongst ourselves. As sad as it is to realise the impacts that human communities are having on the health of our Taiao, the physical act of removing waste from the Whau has proved both healing and inspiring. This was unexpected and shines light on the potential of action research, activism, and kaitiakitanga for easing eco-anxiety and enhance well-being. During clean-ups, people often express their desire for stronger societal efforts towards waste reduction and better waste management systems, so that the mana and mauri of places like the Whau can be maintained for generations to come. This is the essence of kaitiakitanga: caring for our world and ensuring that future generations are best equipped to live and thrive. This takes rangatiratanga, the enacting of our inherent socio-political agency, to

achieve the transformation we advocate for through our Kaupapa Māori citizen science methodology.

There are certain limitations to our community-led data collection methodology that reflect the citizen science research context. This includes a lesser focus on precisely measuring how plastics pollution is physically distributed at the Whau. This means our data is subject to external influences beyond the immediate control of citizen scientists (such as site popularity, littering, lack of bins, proximity to waste management facilities, etc). Despite this, our research illuminated the importance of recognising how socio-structural influences perpetuate plastics pollution at the Whau.

#### *Potential for adaptation in other Indigenous contexts*

This discussion has focussed on how we co-created a brand audit methodology that is appropriate for the specific social, political, and cultural contexts of Te Wai Whau. While this methodology should not be directly transposed for other Indigenous research contexts, it does illuminate key areas of consideration that all brand auditors – Indigenous or not – should consider before working in Indigenous spaces. I highly recommend adapting BFFP's brand audit methodology for the particular contexts in which citizen scientists plan to work, with specific focus on collaborating with local communities and Indigenous authorities throughout the research process. A document outlining a general Kaupapa Māori brand audit procedure has been appended to this thesis, though this will need to be adapted for use in other research settings.

#### **Conclusion**

This discussion has shown the importance of allowing space for our Kaupapa Māori brand audit methodology to iteratively develop in the field, alongside the Whau community. By considering the unique contexts in which we work, we are better placed to consider how our research could be used to inform societal transformation in response to plastics pollution. The Kaupapa Māori approach to our brand audit methodology encourages us to make decisions and connections that previous brand auditors have not. This has allowed our particular methodology to focus on serving the Whau community's specific needs and aspirations. By collaborating with our research community, we recognise their inherent rights, mana, and rangatiratanga, and work together to care for the Taiao as our Taiao cares for us.

### **3. Connecting research with wider society: Working towards socio-ecological justice for Te Wai Whau, Aotearoa, and beyond**

#### **Introduction**

Kaupapa Māori research is necessarily linked to action, activism, and societal transformation (Jackson, 2015). Matamua (2022) emphasised the importance of not only collecting information through research but incorporating these learnings into our personal and collective lives (para. 14). This contrasts with how dominant science relates to society: despite the overwhelming evidence that the widespread use of plastics leads to ubiquitous pollution, or the large-scale emission of fossil fuels heats up our atmosphere, “the science has failed to embed that knowledge in the everyday practices of people” (ibid., para. 20). Matamua (2022) further argues that “If western science was all knowing and all perfect, then we wouldn’t find ourselves in a situation where we continue to destroy the only livable [*sic*] planet we have that exists within any manageable distance from us” (para. 20). There is evidently a need to better connect research with civil society and policy and understand these issues holistically in the development of community-led solutions.

Throughout this research journey, kaiāwhina have consistently expressed the need to understand plastics pollution as one symptom of a larger dysfunctional system. This system extends beyond Aotearoa to include dominating global economic and political systems characterised by cultural oppression and economic exploitation (G. H. Smith, 2005, p. 29) that perpetuate socio-ecological injustice. Recognising how plastics pollution and its interconnected crises resulted from these processes is a core aspect of this Kaupapa Māori citizen science methodology, and illustrates the need to approach these issues holistically, with change at all tiers of our local, national, and global society.

There is no silver bullet to ‘solve’ plastics pollution, systemic racism, climate change, biodiversity, loss, or ecological exploitation. It has become apparent, however, that kaiāwhina view total system transformation as a critical step in addressing these interconnected challenges. This said, as Jackson (2021) discussed,

Restoration (like colonisation) is also a process, not an event, and it will require a change of mind and heart as much as a change of structure. There will of course be difficulties: such transformations must confront the implacability of a power unjustly taken.

This describes how cultural change is just as vital as structural change for addressing these issues, as societal transformation must be driven by an informed democracy that prioritises socio-ecological justice and the overall well-being of our Taiao.

While the previous chapters focussed on the potential of bringing Te Ao Māori into plastics pollution research, this chapter looks at the bigger picture by identifying how our systems in Aotearoa and the wider world may be transformed to prioritise social and ecological justice. Three key areas currently dominated by oppressive colonial ideology were identified by kaiāwhina as in urgent need of transformation to address these major socio-ecological issues, including: the socio-cultural landscape of Aotearoa; dominant economic systems, including resource and waste management systems; and dominant political systems in each local, national, and international contexts.

### **Analysis of brand audit findings**

The mātauranga we gained through brand auditing has been informative and evocative. Importantly, some of the major polluters identified through our Kaupapa Māori brand audits at the Whau were NZ brands. This information has been hard to swallow, as supporting local businesses is a fundamental part of Aotearoa's consumer consciousness, yet many are implicit in generating pollution by using single-use disposable plastics in the design of their products. Upon further inspection, brands that I had long thought were local to NZ (such as Kiwi Blue water and Bluebird) turned out to be owned by international conglomerates like Unilever, Mondelez International, Coca-Cola, PepsiCo, and Nestlé. This shows the oft-unseen influence (corporate imperialism) of these corporations in Aotearoa's society and national consciousness. This is particularly nefarious considering these foreign corporations often use our own language and ideals to sell us products that come from our own natural environments.

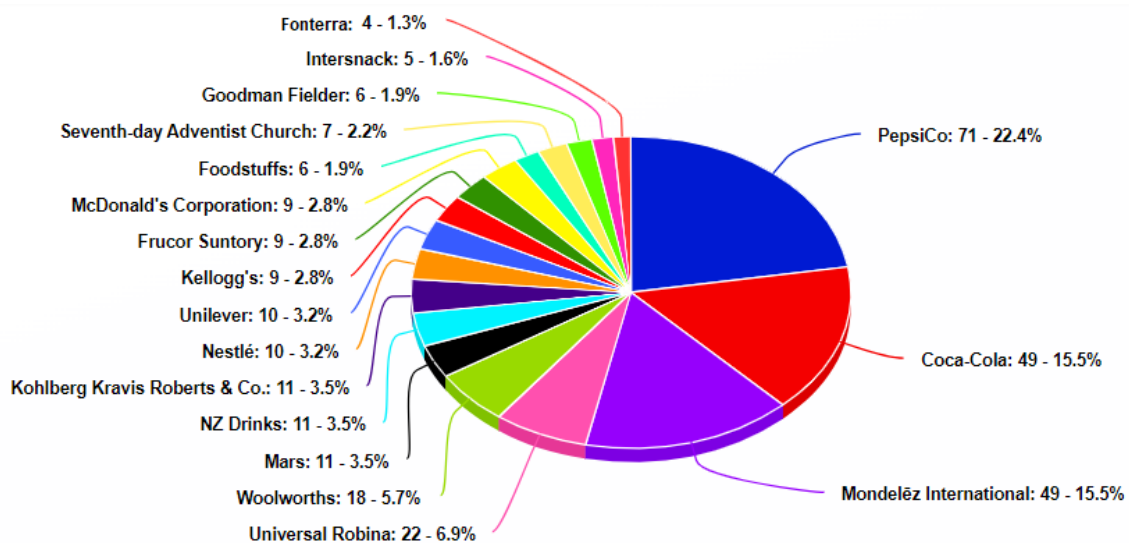
Our audit illustrated the widespread use of greenwashing and kiwi-washing in marketing and product design to counteract consumer concern for the harms associated with single-use disposable plastics. Brands such as Kiwi Blue, Nature Valley, and Mother Earth capitalise on patriotism, natural imagery, and Indigenous worldviews to market their products, despite the ecological threats that their products pose at end-of-life. For example, Kiwi Blue, a popular bottled water brand in Aotearoa, is owned by Coca-Cola, who impinge upon local water sovereignty and security by selling single-use plastic bottles filled with water from the Waikato back to NZ consumers. This behaviour has been replicated by Coca-Cola across the globe, with millions of people in countries such as India (Drew, 2021) and South Africa (Marcoux, 2022) living without

safe water due to Coca-Cola's control of water facilities. By hyper-extracting, commodifying, and normalising the sale of water in plastic bottles, corporations like Coca-Cola have changed and controlled many people's relationships with water and its life-giving properties (Jaffee, 2020). This also creates an unavoidable reliance on bottled water in areas where safe water is otherwise inaccessible (ibid.). Beyond the plastics pollution associated with single-use plastic bottles, the human rights violations that Coca-Cola and such corporations perpetuate threaten the lives of countless people in the name of profit.

Moreover, the parent companies of many identified brands (represented in the following pie chart) shed light on the international influence of not only powerful corporations, but religious institutions such as the Seventh Day Adventist Church:

**Figure 16**

*Pie Chart Quantifying Plastic Waste Audited at the Whau, Identifying the 18 Top Polluters by Parent Company.*



Alongside major global polluters such as Coca-Cola, PepsiCo, and Nestlé, each of whom are widely represented in brand audits worldwide, one major polluter we identified is Australian-based food company Sanitarium, owned by the Seventh-day Adventist Church. As a religious institution, the brand often celebrated for bringing staple foods such as Weetbix and Marmite to tables throughout Oceania is exempt from paying income tax, despite making \$10 million in profits in 2019 (Blake-Persen, 2019). These profits are purported to be used for charitable purposes (which apparently includes advancing religion), though proof of this is rarely ascertained (ibid.). This

shows the special affordances provided to dominant religious institutions, thereby perpetuating their political and socio-cultural influence. These results are illuminating considering the roles such institutions have in perpetuating Indigenous oppression and imperialist ideology over the past several centuries and still today.

As over 195 brands were identified as plastic polluters at the Whau, the overproduction of plastics is clearly a systemic issue reflective of capitalism's take-make-waste philosophy. The normalisation of plastics in our economies, alongside the obfuscation of plastics' hazardous materiality by industry and government alike, has led to this point of ubiquitous plastics pollution. This conflicts with the dominant narrative that individual consumers are responsible for mitigating plastics pollution. Still, there remains a disconnect between people and the potential of systemic change rather than solely focusing on individual behaviour change. This can obscure and limit our understandings of what effective solutions to the plastics pollution crisis may look like. This Kaupapa Māori brand auditing process has therefore helped us as researchers exert our rangatiratanga by displaying the ways in which plastics pollution is perpetuated by dominant systems and highlighting how we as citizens can provoke systemic transformation.

### **Kaupapa Māori citizen science as socially transformative praxis**

As our database grew, the next step was to figure out what to do with all of our brand audit data. As the data came from the Whau, it is the intellectual property of Te Kawerau ā Maki, I organised another zui with Robin to discuss how we might mobilise our data to inform systemic change. Robin expressed interest in sharing our findings with local businesses, particularly those upstream of the Whau, as much of the pollution entering the Whau likely comes from these places. We also discussed the possibility of co-writing letters to the NZ Ministry for the Environment and the Ministry of Foreign Affairs and Trade. We could use our findings to demonstrate the impacts that plastics have on our Taiao, call for increased regulation of plastics production and usage, and more investment in refill, reuse, repair, and recovery systems.

At this point, we also noted the importance of having a large database of polluting brands to support any potential communications with industry or government. As our collection of brand data had been restricted by the pandemic, we decided that we would continue brand auditing beyond the timeline of this thesis research. Any potential actions we take in the future would therefore be better supported by a larger database of physical evidence. Other potential actions we may take are inspired by actions suggested by BFFP. Considering community engagement is a core aspect of citizen science, BFFP (2022) encourages brand auditors to share their findings on social media and communicate them as widely as possible. With the plastics themselves, BFFP

suggests sending/delivering them back to the corporations that made them, alongside letters, petitions, and other forms of civic action to urge them to #breakfreefromplastic.

### **Transforming culture and community**

As one of the core aims of citizen science is to facilitate community-based political engagement through science. Many conversations with kaiāwhina centred around the need for improved access to research and education. Kaiāwhina were also passionate about cultural change through the fostering of community cohesion, resilience, and self-sufficiency. This was seen as essential for mitigating plastics pollution through the realisation and implementation of kaitiakitanga, kotahitanga, and rangatiratanga throughout Aotearoa.

For kaiāwhina, decolonising our social systems in response to socio-ecological crises requires communities to address racism in its various (colonial, systemic, lateral) forms, while embracing today's cosmopolitan, pluralistic reality. It means reclaiming our rangatiratanga over our relationships with our Taiao, rather than institutionalised dependence on central governments to provide essentials like food, water, and energy, as this system has demonstrably perpetuated race, gender, and class-based inequality through paternalistic, colonial ideologies (Hobbs et al., 2019). It means connecting researchers and their research with communities with the intention of improving the circumstances of those studied. It means addressing digital inequity as a community so that whānau do not have to miss out on education due to oppressive power structures. It means ensuring that education systems are inclusive, honest, and anti-racist, rather than the sanitised, whitewashed, Eurocentric education that many like myself received in school. It means stronger, more balanced relationships between Tāngata Whenua and Tāngata Tiriti (people of the Treaty)/Tauīwi (non-Māori settler) so that more decision making that affects our people and our Taiao is more inclusive and not solely situated within dominant Western paradigms.

### *Individual and collective responsibilities*

One recurring theme throughout this research has been the struggle between individual and collective responsibilities to affect societal change in response to plastics pollution. Kaiāwhina viewed changing individual behaviour as essential here, as littering is a genuine issue emergent from a lack of human-nature cultural connectivity. But kaiāwhina also recognised the structural issues at hand, and the relatively few people who possess most of the power, resources, and influence needed to create effective systemic transformation (but perhaps lack the will to do so)

in both Aotearoa and the international community at large. We also have a culture that normalises overconsumption, resulting in the need for more landfills and the continued pollution of our Taiao. Addressing this problem as individuals, households, and communities is citizenship and an informed democracy in action, as Carla said,

When the people choose to vote with our feet and make a difference and do something, our governments will follow. I don't ever believe it happens the other way. Our government doesn't lead it; the people lead it. We really need to do that. That's my hope: that we start to really feel the sense of urgency to take individual responsibility, collective action, and make our governments, make big enterprise, start to make changes to the ways that they do things. Not to greenwash, but to genuinely take it under control.

It was seen as vital that individuals understand their responsibility as part of collectives to drive the societal changes necessary to address problems like plastics pollution, including prevention and refusal, and a cultural shift towards communal reuse, refill, and repair systems. Similarly, civic action on plastics pollution has become increasingly pronounced in recent times as people become more aware of the plastics pollution crisis. In June 2022, Juressa presented Greenpeace Aotearoa's 100,000 signature strong petition to ban single use plastic bottles and incentivise reusable and refillable alternatives in Aotearoa to parliament:

**Figure 17**

*Juressa Lee Presenting Greenpeace Aotearoa's Petition to Ban Single-use Plastic Bottles to Green Party MP*

*Eugenie Sage at NZ Parliament (Lintott, 2022, as cited in Young, 2022).*



This shows that there is clear and growing public support for effective and immediate action on plastics pollution to protect our Taiao from further contamination. This follows previous calls for bans on plastic bags and micro-beads, both of which had broad public support and have since been implemented by the NZ government. Exercising rangatiratanga in this way has shown the inherent power that our communities have to affect meaningful change, demonstrating the importance of kotahitanga, education, and activism in our enactment of kaitiakitanga. This also shows how our individual and collective responsibilities can exist simultaneously, they are not mutually exclusive, particularly when it comes to generating systemic and structural change.

### *Community resilience and food sovereignty*

This focus on community building exemplifies the deep concern and care that kaiāwhina showed for the well-being of their communities and our Taiao. The sense of urgency to create practical and effective societal change reflects kaiāwhina's understandings that

[t]he reality is, when shit gets real [i.e., natural disasters, supply chain collapse], you'll look to your community for support, not actually central government, they won't be there. They'll take 5, 6, 10 days to get there (Carla), and

[w]e're getting to this point where the future is kind of fucked, and we have to deal with it, and being able to write a mean funding application is not going to save [us] anymore (Hollie).

Permeating these discussions was a distinct sense of the impending breakdown of global supply chains and our incapacity to respond confidently and support ourselves as communities. Hollie added that, "This future is coming whether I make a policy or not. I need to know how to feed myself, I need to know how to grow my own food, create my own power, get my own water." Policy change and corporate regulation are important tools for mitigating global plastics production but at a community level, what needs to be done to ensure our communities can survive this pollution, climate change, and the other inevitable impacts of late-stage capitalism?

There is a strong desire amongst kaiāwhina to become more independent and self-sufficient as communities. This is a multifaceted process of community power reclamation that Carla believes: "starts with food, energy ... education and resilience, but as you look at those things, they're all

interwoven.” She adds, “[T]here’s such strength and opportunity within your own community. Once you see that sense of your own resilience, it has the ability to flourish.”

Food sovereignty, safety, and security was identified as a crucial first step in reclaiming this rangatiratanga. Several kaiāwhina such as Carla, Hollie, and Juressa discussed the value of having edible community gardens replace empty green spaces in parks to ensure access to fresh produce for those who cannot afford rising food prices and ease our collective reliance on global systems. Similar arguments have been made in academic literature, wherein access to gardens and gardening has demonstrably improved social cohesion, community health and well-being, and resilience (e.g. the work of Shimpō et al. [2019] in Ōtautahi/Christchurch, and Budowle et al. [2019] with Indigenous communities in Wyoming). Community gardens that ensure equitable sharing of kai are an effective and inclusive example of how people relate to the food they eat and facilitate opportunities to learn how to maintain food security. This is particularly apparent in the adverse contexts of natural disasters (Shimpō et al., 2019), climate change (Budowle & Porter, 2022), and widespread ecological contamination. Community gardens have the potential to benefit everyone in a community, especially people without housing or easy access to fresh food and water, as I have noticed in other industrialised cities such as Vancouver. This way, as Carla says, “when the time comes, and it will, when central supply lines break down, they’re not worried about it. They know how to [survive]. They’ve got the skills, the understanding, the ability, the space”.

This changes our perception of resources and materiality, reconnecting us with the processes that bring kai to our tables. Te Kawerau ā Maki are already facilitating this kaupapa of growing self-sufficiency by providing garden starter kits for whānau moving into the rohe (areas) they hold mana over. Community-based environmental organisations like EcoMatters, Carla notes, could also support households through similar support systems. These actions reconnect us with our ancestral ways of community-based resource sharing and mutual care. Re-localising our food systems also reduces demand for plastic packaging, international labour, and fossil fuels involved in international trade and shipping.

### **Developing a circular economy**

As food sectors become more industrialised, energy-intensive, and globalised, the greater the ecological impact (Ritchie & Roser, 2020). Much has been said about how the destruction of wetlands and mass deforestation throughout Aotearoa to support farming and how the significant emissions released by Aotearoa’s farming industry contributes to global warming,

biodiversity loss, and water contamination. Aotearoa is renowned for our meat exports, but the collective greenhouse gas emissions produced by these industries are warming Earth's climate and slowly killing us. The immense socio-ecological harms involved with sustaining this economic system has led many kaiāwhina to call for the wholesale transformation of our local, national, and international economic systems.

Aotearoa's economy is currently based on capitalist and neoliberal principles of deregulation and a largely free-market system with a strong reliance on exports, imports, and international trade (Greenaway-McGrevy et al., 2020, p. 5). Aotearoa's capitalist economy, like many across the globe, is largely based on a linear take-make-waste philosophy that is predicated on maximising production and inevitably, pollution (Blumhardt & Prince, 2022). The problem is that linear economies generate waste by design and are therefore inherently ecologically unsustainable. A 2020 University of Auckland report argued that climate change, the COVID-19 pandemic, and rapid technological advancement each "have a potential to undermine our current economic model...and have the potential to increase inequality" (Greenaway-McGrevy et al., 2020, p. 5). These accelerating pressures on our society demonstrate the urgent need to transform our economy with equity, resilience, and ecological sustainability prioritised.

These processes have led to the theorisation of the 'circular economy' model, an approach to economics in the Western canon that aims to eliminate waste from the system altogether (Ellen MacArthur Foundation, 2022), much like pre-colonial Indigenous systems did. Support for this sort of economic redevelopment is ever-increasing in both public and political spheres, with the NZ government already committed (in writing) to transition towards a circular economy (Office of the Prime Minister's Chief Science Advisor, 2019). As plastics are composed of non-biodegradable polymers and toxic chemical additives that harm organic life, they are largely unfit for use in a circular economy. However, certain plastic products are critical within healthcare and to support people with disabilities, so there are equity concerns involved with suggesting a total abandonment of plastics. Still, it remains that if we are to be serious about enacting kaitiakitanga and protecting our Taiao, the radical minimisation of plastics throughout our economy is critical.

### *Kaitiakitanga-based economics*

Linear economic systems that overuse plastics and produce waste by design are incompatible with a kaitiakitanga economic framework. In response, kaiāwhina, alongside many scientists and community leaders, have concluded that developing a localised and largely self-reliant circular economy for Aotearoa is essential to preserve the vitality of our natural environments for future generations. This may have additional positive impacts, as people become more attuned to the

origins of their kai and other consumables and the socio-ecological impacts involved throughout extraction-production-consumption processes.

For Juressa, “our future looks like our past” and economic transformation can and should be led by the mātauranga of our ancestors:

This is our Whenua. We’ve looked after it for hundreds of years before colonisation, so we know it better than anybody else. We were living the ‘circular economy’ long before it was called a circular economy, on this Whenua, and so we should be leading. We know this Land better. It’s our Whenua, and we should have the rangatiratanga to decide what a return [looks like]. But not just what it looks like, because first I think we have to recognise that it is the thing that we should be doing.

Kaiāwhina also discussed how in previous generations, there was much more emphasis on frugality and the conservation of valuable resources. Wastefulness was not normalised; people tended to live more carefully and share things communally. In today’s world of hyperconsumption, many people seem to have lost sense of the actual value of resources. Natural resources and particularly fossil fuels are also not consumed by individuals equally. This poses an issue of inequity, both socially between humans and within our wider ecological relationships, wherein we largely consume without appropriate reciprocation or regeneration.

### **Transforming politics and governance**

Rangatiratanga, power, agency, and mana have each become powerful recurring themes throughout this research. I began this journey questioning what it means to be colonised, to live on Land that has been colonised and abused, to whakapapa to both the coloniser and the colonised, to be a citizen, a scientist, a kaitiaki. What I have learned is that there are no definitive answers to these questions, as our political circumstances continue to morph and evolve in often unexpected ways. What has become clear through these engagements with the Whau and with kaiāwhina is that we each have a responsibility to do what we can for each other and for our Taiao. It is no longer about placing blame here or there for the state of our Taiao, as we are all complicit in the systems that we are a part of. So where do we go from here?

Increasing regulation around plastic production, use, and consumption globally is evidently key for mitigating plastics pollution. Negotiations for the highly anticipated global plastics treaty are expected to be completed by 2024. This treaty will drive the intergovernmental political effort to

end plastics pollution, but community-led civic action remains necessary to ensure the treaty is implemented across all societal sectors. It is vital that such a treaty takes a holistic, full life span approach to plastics and consider how plastics pollution is perpetuated throughout our societies, with Indigenous voices, worldviews, and knowledge systems represented throughout the treaty's development.

Long-term, Aotearoa needs political transformation to bring about more equitable Māori-Crown relationships and re-prioritise the collective health of our Taiao over individualistic interests. While I cannot speak on behalf of other Indigenous Peoples, I am aware that Indigenous Peoples and their allies in many other colonial states are also calling for political transformation to systematically address these socio-ecological injustices. This is a kaupapa that extends well beyond Aotearoa.

### *Challenging systems of power*

All kaiāwhina scrutinised how the political sphere is where we make decisions around the health of our communities and Taiao, yet these are not prioritised within our current systems. NZ currently has a particularly biased political system that has always served the settler majority at the expense of Māori. While this is common in colonial circumstances, NZ's government system is unique in that it is based upon Te Tiriti o Waitangi, through which Māori rights to self-determination were affirmed by the Crown and remain inalienable. However, the subsequent dispossession of 95% of Māori Land (Mutu, 2019; Community Law, 2022) and the forced assimilation of Māori into Pākehā social, economic, and political systems demonstrates the cultural genocide that Māori are still dealing with and recovering from.

Several kaiāwhina saw the centralisation of political power in the NZ government as problematic, especially as the patronising bureaucratic system prevents Māori from acting on their own rangatiratanga and kaitiakitanga. Moreover, kaiāwhina such as Hollie, Te Kaurinui, and Juressa discussed how the inaccessibility of Aotearoa's political system inhibits Māori participation. Hollie recalled that while she was working for the NZ government, her employers asked her 'Why aren't Māori applying for these jobs?' [to which Hollie replied] 'Look at the job description! I wouldn't even apply for this job' as they are often convoluted with technical language. Even when government positions are attained by Māori, kaiāwhina spoke about the frequent tokenisation of Māori and Te Ao Māori in these workspaces, showing the inherent biases of NZ's current political system. This highlights some of the barriers preventing Māori voices from being heard in

decision-making spaces that inhibits mātauranga Māori from being utilised in response to the major socio-ecological issues we face, including plastics pollution.

### *Constitutional transformation*

These conversations would often lead to the topic of constitutional transformation, a kaupapa that has become mainstream in the wake of the #BlackLivesMatter and #LandBack movements which have provoked major global discourse on the legacies of European imperialism. These conversations have become more mainstream in Aotearoa since the publication of Matike Mai Aotearoa's 2016 report on constitutional transformation, as well as Charters et al.'s 2019 inquiry into how the NZ government can respond to the goals of the UNDRIP (2007). Proponents of constitutional transformation in Aotearoa are largely Māori, Tāngata Tiriti, and Tauīwi. As Matike Mai Aotearoa (2016) discussed, the primary aim of the Independent Working Group on Constitutional Transformation was

[t]o develop and implement a model for an inclusive Constitution for Aotearoa based on tikanga and kawa, He Whakaputanga o te Rangatiratanga o Niu Tirenī of 1835, Te Tiriti o Waitangi of 1840, and other indigenous human rights instruments which enjoy a wide degree of international recognition (Matike Mai, 2016, p. 7).

The ultimate intention of these reports was to incorporate the UNDRIP's recommendations and facilitate conversation on the potential for constitutional transformation in Aotearoa to reaffirm tino rangatiratanga (absolute sovereignty) for Māori (Matike Mai Aotearoa, 2016; Charters et al., 2019). Underpinning this kaupapa is a sense of urgency to act decisively and holistically in response to pollution, climate change, and all other socio-ecological crises that have resulted from the dysfunction of our current political structures (ibid.).

The NZ parliament's 3-year political turnover was cited by kaiāwhina as perpetuating inconsistency around the government's treatment of Māori and our Taiao alike. Similarly, the dominant culture of treating the Land as both a resource and a place to eject anthropogenic pollution continues to produce demonstrably irresponsible and dangerous socio-ecological outcomes. Indigenous leadership and relational philosophies are therefore becoming increasingly essential for Aotearoa's socio-political redevelopment and the transition to a circular economy based on intergenerational responsibility and socio-ecological justice.

Kaiāwhina also considered such moves toward equitable power-sharing as critical for ensuring mātauranga Māori and other sciences are used to inform policy that effectively, holistically, and

proactively prevents plastics and other forms of pollution. With the wellbeing of our Taiao prioritised over individual accumulation of capital, more consistent and considered action can be taken to hold polluters accountable, prevent pollution at the source, and support restoration and regeneration initiatives.

## **Conclusion**

The process of developing a Kaupapa Māori brand audit methodology for Te Wai Whau has shown Aotearoa's need for total system transformation has become clear. The decolonisation of research, culture, community, economics, and politics was identified by kaiāwhina as necessary to holistically address these crises we are all facing today. Kaiāwhina have also spotlighted ways in which socio-ecological justice can be not only achieved but centred within Aotearoa society going forward. The transformation of each of these areas of society is undoubtedly a long-term, intergenerational responsibility that will not occur overnight. However, kaiāwhina have shown how it will be necessary for the long-term survival of our communities and is our responsibility as kaitiaki of our Taiao.

# HE WHAKAMUTANGA - CONCLUSION

\* \* \*

This study has explored the potential value of co-creating a Kaupapa Māori citizen science methodology alongside the Whau community, so that we may use this anthropological research to work towards systemic societal change that holistically addresses plastics pollution and its interconnected challenges. The research has shown that our co-adaptation of BFFP's brand audit methodology for the specific socio-ecological, political, and cultural contexts of the Whau has increased its local value and enabled the research to connect to broader discussions around decolonisation in both science and society.

I began exploring these ideas in late 2020 when I first met and became familiar with the Whau and its local communities, including Tāngata Whenua, residents, workers, researchers, and kaitaki. The Whau community has consistently shown their endless passion and dedication to protecting the mana, mauri, and hau of this rohe. Working alongside these people has taught me the importance of treading carefully and lightly on this Earth. It has shown the value in sharing knowledge, of building awareness and motivation to act on these interconnected socio-ecological challenges and their structural causes. These learnings became interwoven with this projects' Kaupapa Māori citizen science methodology, which ultimately became a useful vector through which to exercise our kaitiakitanga, kotahitanga, and rangatiratanga. Through this process, our kaiāwhina and research whānau collaborated as politically-engaged citizens by challenging the dominant social, political, economic, and academic systems of our world.

## **Key takeaways from the research**

This research process has taught me many things, but perhaps the most important realisation is that we each possess an innate power, our own mana, with which we can change the world. Community power is the core of Kaupapa Māori and with our rangatiratanga recognised, we can grow our collective will to affect positive societal change. It quickly became apparent that much of this motivation comes from interactions with our Taiao. Te Wai Whau has shown that it has much to teach us, not only through the waste we collect in its waters and on its banks but in our growing relationships with the Awa itself. Working with the Whau community to develop this Kaupapa Māori citizen science methodology has helped grow our knowledge of the pervasiveness

of plastics in the Whau and how we, as kaitiaki and as active citizens, can work towards holistic and effective solutions.

The core aim expressed at the outset of this study was the development of this Kaupapa Māori citizen science methodology, but the project also focussed on questioning the relationships between plastics, people, and power. This intersection proved to be volatile as Aotearoa's dominant economy has become largely dependent on the overuse of plastics in daily life, allowing plastics to become ubiquitous in human economies and lifestyles as well as our Taiao. Speaking of capitalist psychology, Kimmerer (2013) argued,

We have constructed an artifice, a Potemkin village of an ecosystem where we perpetrate the illusion that the things we consume have just fallen off the back of Santa's sleigh, not been ripped from the earth. The illusion enables us to imagine that the only choices we have are between brands (p. 199).

This quote epitomizes one of the core issues of global capitalism and this is reflected in the greenwashing campaigns of many brands now publicly identified as polluters. With brand auditors worldwide dismantling dominant narratives and shifting societal focus towards systemic change, this shows how we are currently witnessing a necessary if overdue recognition of people power in the protection of our Taiao. Working against the immense power structures involved in the continued overproduction of plastics and the perpetuation of the petrochemical industry is a behemoth of a task that requires an organised and educated collective effort. My hope is that this project, in some small way, can help build the motivation to take on this difficult but necessary task.

Our brand audit process has shown how the embodied practice of Kaupapa Māori citizen science connects us with our whakapapa and our Taiao. By including mihi, karakia, and waiata in our process we actively create space for 'doing' research in a community-based Māori way. Our discussions illustrated not only how plastics end up polluting the Whau, but the lack of intergenerational forethought that underpins the widespread single-use and disposable product design model in many industries from food and packaging to medicine and construction. This highlights the need for corporations and industries at large to finally take responsibility for the impacts of their products throughout their full life spans. This kaupapa of product stewardship is key for the prevention of further plastics pollution. Our governments, as the only party with the power to regulate harmful business practices and systematically shift us towards a sustainable future, have a responsibility to act upon this knowledge. As we grow our collective

understandings of plastics pollution, we can push both industry and government to work in the best interests of our entire Taiao, not just those with the most capital, power, and resources.

Despite the discipline's problematic history, anthropologists today can re-evaluate their positionalities in dominant science and consider the implications of this power dynamic by working alongside research communities on a more collaborative and equitable basis. Kaupapa Māori teaches us that research should not be solely about data extraction and analysis, it must lead to meaningful outcomes for the people we work with. Otherwise, it can be a rather selfish endeavour that only benefits the researcher at the expense of the community, the definition of wealth extraction. Situating this research within a Kaupapa Māori framework has likewise been essential for contextualising this project within the cultural landscape of the Whau. It has also allowed the research to expand and contract in uniquely Indigenous ways, enabling the study to diverge from dominant ontological and epistemological traditions. The rangatira who developed Kaupapa Māori have given us a gift that may not always be straightforward and tidy, but certainly helps us as researchers become better tūpuna who strive to protect our whakapapa through research.

Linda Tuhiwai Smith (1999) taught us that decolonising every aspect of our colonial/colonised society, including our scientific and academic spheres, begins with the decolonisation of our minds. Part of Aotearoa's march towards decolonisation is the recognition that we belong to a wider, more vibrant world than dominant ideology tends to imagine. Unlearning the parts of dominant worldviews that obsessively hierarchise, categorise, and divide our worlds is a fundamental, if often difficult, process in the creation of reciprocal and sustainable relationships with our Taiao. This reflects the ongoing post-structuralist and post-humanist movements within anthropology that aim to decentre humans in research practice and the academy, though further work is needed to ensure these movements acknowledge and have a solid grounding in Indigenous knowledge. Kotahitanga teaches us that in all our diversity, we are still one people, one Taiao. Remembering this knowledge helps us understand how hurting our Taiao through pollution and degradation is ultimately self-sacrificial. To me at least, maintaining the status quo of hyperextraction and hyperconsumption at the expense of everyone else living in our world is not worth dying over. As has been discussed, Indigenous leadership will be crucial in the development of international responses such as a global plastics treaty. The fight to ensure genuine representation at these key decision-making tables is not over and the path towards a zero waste, toxic-free, regenerative circular economy still has its challenges.

As with all socio-ecological challenges, preventing plastics pollution requires a strong sense of collective responsibility for our actions and behaviour in relation to both each other and our Taiao. Recognizing our roles within our whakapapa to protect and preserve this world for our future generations is the essence of kaitiakitanga. This ethic needs to be at the forefront of all discourse addressing plastics pollution, climate change, biodiversity loss and so on, as these crises will be most catastrophic for our children and grandchildren, not us. Minimising the plastic packaging used in and the greenhouse gas emissions that come from reliance on international trade will help Aotearoa on our path towards a sustainable future. Re-localising our economies speaks to our resilience and self-sufficiency as communities and may also lead to a multitude of opportunities for rectifying the mistakes of the past while building better systems that protect our futures.

I wholeheartedly believe that there is hope for our world. Hope is found in the actions of our rangatahi who are fighting for action on climate change. I see hope in our community leaders who are cleaning up our waterways, building community gardens, and uplifting our people through education. I see hope in our tūpuna who have paved the way for us and continue to guide us on this journey by passing on their mātauranga to the next generation. Knowing that people all over the world are dedicated to finding holistic solutions to these problems is a cause for hope. There are so many things we can do to turn the waka around and build a safer, healthier, and more stable world for not just our human relations, but for our entire interconnected Taiao.

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# APPENDICES

## 1. TE REO MĀORI GLOSSARY

This glossary is largely derived from [maoridictionary.co.nz](http://maoridictionary.co.nz) with some additions that reflect the understandings of kaiāwhina and the Whau cultural context. While Iwi/Hapū have their own linguistic nuances and conceptions of certain words, the following definitions are common and widely understood. Many words also have verb, noun, and adjective forms that may not appear in this glossary.

Kupu/Word	Tautuhi/Definition
Aotearoa	'Land of the Long White Cloud'; a common Māori name for New Zealand
Aroha	Love, affection, compassion, empathy
Atua	God(s)
Awa	River, stream, creek, gorge
Hapū	Sub-tribe; pregnant
Hau	Vitality, vital essence
Hauora	Health, fitness
Hīkoi	Walk, march, protest; public mobilisation and resistance
Hui	Meeting
Iwi	People, tribe; bone, strength
Kai	Food, sustenance
Kaitiaki	Guardian, caregiver, custodian, keeper
Kaitiakitanga	Intergenerational responsibility (to preserve mana/mauri/kai)
Kaiāwhina	Contributor, participant, mentor
Kaiarahi	Guide, leader, mentor
Kaimoana	Seafood
Kanohi ki te kanohi	Face to face
Karakia	Prayer, incantation, chant
Kaumatua	Elder
Kaupapa	Issue, topic, policy, plan, agenda
Kaupapa Māori	Māori approach, practice, principles, philosophy and aspirations
Kia ora	Hello
Kirihou	Plastic (literally: 'new skin [of the world]')
Koha	Gift, offering, donation
Kōrero	Talk, speech, conversation, discourse
Kotahitanga	Oneness, unity, solidarity
Koru	Spiral symbol (akin to an unfurling fern frond)
Kupu	Word
Mahi	Work
Mahinga kai	Customary Māori food gathering systems
Mana	Spiritual power, authority, agency, prestige
Manaakitanga	Hospitality, generosity, the process of uplifting others' mana

Mana Moana	Authority/custodianship over the Ocean and Lakes
Mana Whenua	Authority/custodianship over the Land; traditional rights to a territory
Mamae	Hurt, pain, harm
Māori	Indigenous people of Aotearoa; normal, ordinary, natural
Marae	Meeting ground and community centre for Māori
Maramataka	Māori lunar calendar
Mātauranga	Knowledge, wisdom, understanding, skill, science
Maunga	Mountain, peak
Mauri	Life force, vital essence
Mihi whakatau	Welcome speech
Motu	Country, land, island, nation
Moana	Ocean, Sea, large Lake
Mokopuna	Grandchild, descendent
Ngā mihi (nui)	Thank you (very much)
Para Kore	'Zero waste'; the name of a Kaupapa Māori zero waste organisation
Pākehā	Non-Māori settler in Aotearoa, usually a person of European descent
Papatūānuku	The Land Mother, wife to Ranginui (the Sky Father)
Pepeha	A way of introducing oneself in Te Ao Māori that involves sharing genealogical connections to people, Maunga, and Awa
Pōwhiri	Welcoming ceremony
Pūtaiao Kirirarau	'Citizen science'
Rāhui	Temporary prohibition (to a place, resource)
Rangahau	Māori-centred research practice
Rangatahi	Youth
Rangatira	High ranking person, leader, chief
Rangatiratanga	Self-determination, autonomy, agency
Ranginui	The Sky Father, husband of Papatūānuku
Rohe	Area, boundary, region
Rongoā	Medicine, treatment, remedy
Tā Moko	Traditional tattooing
Taiao	Māori conception of the interconnected (natural, social, spiritual) world
Tāmaki Makaurau	'Tāmaki (Auckland), desired by many'
Tamariki	Children, young people
Tāngata	Humans, people
Tāngata Tiriti	People of the Treaty (of Waitangi)
Tāngata Whenua	People of the Land; Indigenous Peoples
Tauīwi	Non-Māori settler
Te Ao Māori	The Māori world(view)
Te Ika-a-Māui	'The fish of Māui'; a Māori name for the North Island
Te Kawerau ā Maki	Tāngata Whenua of Tāmaki Makaurau and Te Wai Whau
Te Moana-nui-a-Kiwa	The Great Ocean of Kiwa; the Pacific Ocean
Te Reo Māori	The Māori Language
Te Tiriti o Waitangi	Māori version of the Treaty of Waitangi (with important distinctions)
Te Waipounamu	The 'place/waters of greenstone'; a Māori name for the South Island
Te Wai Whau	Te Kawerau ā Maki's traditional name for the Whau River/Awa

Tiaki	To guard, protect
Tika	Truth, fairness, right, correct
Tikanga	Māori law, rules, customs, correct procedure, traditional values
Tino rangatiratanga	Total self-determination
Tūpuna (tīpuna)	Ancestors
Tūrangawaewae	'Place of standing'; place of belonging, connection, empowerment
Wahine (plural: wāhine)	Woman (plural: women)
Wai	Water
Waiata	Song; to sing
Waitematā	Song
Waka	Canoe, vehicle
Wānanga	Discussions, conference, seminar, webinar, forum
Whakaaro	Thought, opinion, perspective
Whakapapa	Genealogy, lineage; the web of relationships in our Taiao
Whakatau	Decision; to decide, settle, prepare
Whakataukī	Proverb, aphorism
Whakawhanaungatanga	The process of establishing positive relationships
Whānau	Family (often extended); to be born, to give birth
Whanaungatanga	Close relationships, kinship, sense of familial connection
Whau	River in West Auckland; cork-like native tree
Whenua	Land, ground; placenta
Zui	Zoom hui (meeting)

## 2. KAUPAPA MĀORI BRAND AUDIT METHODOLOGY

### What is a brand audit and why should I do one?

Brand auditing is an effective and easy way to connect people with their local natural environments through community-based research. The main aim of brand auditing is to collect waste from a specific place (e.g. a beach, river, or park) and collect brand information from the labels of the items you find. This data identifies which brands are creating plastic pollution and can be communicated with government and industry to encourage them to #breakfreefromplastic by replacing disposable/single-use systems with refill/reuse solutions.

[Break Free From Plastic's \(BFFP\) original brand audit methodology](#) is awesome but it needs adaptation for the particular socio-cultural, ecological, and political contexts of your research site, especially when doing research in Māori and Indigenous spaces. No research methodology is universal or objective, so every brand audit site needs to be carefully considered before research begins. This Kaupapa Māori methodology aims to contextualise this research method within local Māori culture and make the brand auditing process as accessible, inclusive, and intersectional as possible, with focus on restoring our Taiao as much as collecting valuable data.

### 1: Identify brand audit site & approach Tāngata Whenua

From the beginning, the most important thing is to ensure that you respect your brand audit site by speaking with local Tāngata Whenua about your research intentions. Be transparent about our research methods and intentions. Find out about the whakapapa of the place you plan to work in and collaborate with locals to achieve mutual goals on their terms, not just your own. Local people will often be open and interested in collaborating with researchers in their study. Make connections and start building your collective mātauranga to address plastics pollution.

Remember that any brand data collected in Māori/Indigenous spaces belongs first and foremost to the local Iwi/Hapū. This means we should always consult with them before potentially taking any action(s) with our brand audit data.

- Contact the local Tāngata Whenua about the appropriateness and feasibility of your intended research design, site(s), methods, and intended outcomes.
- Commit to being upfront about your own positionality, affiliations (cultural, academic, corporate) and ensure you have the free, prior and informed consent from everyone involved in the brand auditing process.
- Remember and communicate that Tāngata Whenua have full control over any data/intellectual property (mātauranga) that you collect during brand audits.
- Be prepared to receive community feedback and only start brand auditing when/if Tāngata Whenua have given permission to go-ahead.
- Locate potential brand audit site(s) based on Tāngata Whenua recommendations, ease of access and safety considerations, as well as the amount of waste there.

**Optional:** Attend an online BFFP brand audit training session or watch the BFFP brand audit training video (1 hour). Pro tip: [watch this 3 min quick tutorial](#).

## 2: Gather brand audit equipment & plan the data collection process

- Collect all necessary supplies and safety equipment. You will need:
  - [Brand audit data cards](#) and [visual guides](#).
    - *Ensure that all brand auditors know how to use and complete a BFFP data card.*
  - Pens/pencils/paper/clipboards.
  - Protective gloves, enclosed and supportive footwear, waders, mudders, etc.
  - Fishing nets, waste pickers, collection bins/bags, large tarp for sorting plastics on.
- Assess your chosen research site for any potential hazards and note these down. Ask locals if there is anything to watch out for.

**Important:** *Figure out how/where the plastic waste will be responsibly disposed of after the audit.*

## 3: Ground yourself and your group in the research site

- Consider beginning the process with a mihi whakatau (welcome speech) with each person introducing themselves to the group. This is also a good chance to share relevant whakataukī (Māori proverbs), waiata (songs), and/or an appropriate karakia (prayer/chant). This step is important for whakawhanaungatanga (establishing positive relationships) and readying ourselves for the important mahi (work) ahead.
- Ensure all brand auditors fully comprehend and adhere to all relevant Health and Safety protocols (especially in slippery/rocky areas).
- Ensure all brand auditors are aware of the appropriate emergency plans in cases of medical emergency, adverse weather, natural disasters, etc.

## 4: Start collecting plastics!

- Take before and after pictures of the collection site(s) to show your progress.
- Organise your brand audit crew and start filling your waste bags/bins.
- While plastic waste is the most useful for building our database on plastic polluters, it is always good to exercise our kaitiaki responsibilities and remove any waste/contaminants we find in our research sites (if it is safe to do so and you have the time and capacity).

## 5: Auditing your plastic items

- Once you have finished collecting plastics from your research site, sort out the branded plastics from the non-branded plastics and other waste. Dispose of the non-branded plastics and other waste appropriately but remember dirty waste cannot be recycled!
- Sort all the remaining plastic items by brand name and record your findings on the data cards, using the visual guides as necessary.
- Brand information is the most important data we collect in these audits, but it is also very useful to fill in the material type and other columns on the data cards if you can.
- Keep going until you have audited all of your plastic items!

**Important:** *Collecting data from the plastics you've collected can be time-consuming. Allow about 1 hour of auditing/data collection per large garbage bag/bin of plastic items.*

## 6: Finishing up

- Make sure you leave your workspaces cleaner than you found them.
- Consider ending by sharing reflections/whakataukī/waiata amongst the group and, if you began with one, a closing karakia.

### WHAT CAN I DO WITH ALL THIS WASTE/DATA?

Now you have all this great data showing you which companies are creating the plastic pollution in your research area, as well as valuable information about its materiality and intended uses, what can you do with it?

#### Consult Tāngata Whenua first

Before anything else, talk to local Tāngata Whenua about what they would like to see as outputs from this research. As the brand data we collect is mātauranga from their spaces, Tāngata Whenua should always have first access to and authority over it. Make sure you don't overburden Iwi/Hapū/Whānau with this mahi, as they may not have the time and energy to be as involved as you might hope. Share your thoughts and suggest ideas, such as:

- Submit data to research institutions and local authorities i.e. Iwi/Hāpu, councils, etc.
- Share findings on social media (if appropriate).
- Sharing your brand audit data online on the BFFP website to be included in their annual brand audit reports. This step is important if you want to engage with the global brand audit community and make sure your data is shared around the world.
- Share your data/findings with the local communities in an appropriate and useful way (e.g. collaborate with Tāngata Whenua to write a letter to the businesses identified as polluters, local MPs, or the Ministry for the Environment/Ministry of Foreign Affairs and Trade; orally present your results in a wānanga; hold brand audit training sessions; create educational posters/guidebooks, etc).

Your letter could include some of BFFP's main objectives for brand audits:

- Calling on companies to urgently reduce the amount of single-use plastic they use and redesign their business with refill and reuse solutions.
- Encourage legislation that ensures companies reveal how much plastic they use, then set clear, measurable targets for minimising the quantity of plastics they use.
- Establish regulatory legislation that ensures companies are held accountable for the ecological impacts of their plastics for their entire life spans (product stewardship).

#### Sending the plastics back where they came from

One option is to sort out the plastics that you collect by brand/parent company and send them back to their national headquarters. This method refuses to follow the typical route of disposal/recycling and places accountability physically back in the hands of polluters. If you are thinking about doing this, make sure you talk to Tāngata Whenua first.

Ka rawe! Last things last, pat yourselves on the back for your hard mahi. You are helping out the local Taiao all while working towards a healthier for our entire interconnected world. Ngā mihi.