MANTA WATCH: Discovering Aotearoa's Gentle Giants

Filmmaking environments and a nature documentary in New Zealand.

Figure 1 An Oceanic Manta Ray in the Hauraki Gulf swims toward the camera.

Rebecca Pratt

Auckland University of Technology 2024

Master of Communication Studies Exegesis

An exegesis submitted to Auckland University of Technology in partial fulfilment of the requirements for the degree of Master of Communication Studies.

Figure 2, Practice led researcher Rebecca Pratt speaks to the audience about *Manta Watch - Discovering Aotearoa's Gentle Giants* at the WWF Festival, Hawaii USA (2023).

Abstract

Documentary filmmakers have frequently been captivated by the beauty and allure of marine life, yet the Oceanic Manta Ray (*Mobula birostris*) is seldom depicted in such productions. Despite being the largest ray globally, reaching widths of up to 7 metres and weighing over two tonnes, Oceanic Manta Rays are very elusive creatures. Moreover, as of 2024, these rays rank as critically endangered status on the global scale, as designated by the International Union for Conservation of Nature (IUCN).

In the context of New Zealand, Oceanic Manta Rays are protected species; however, a historical lack of scientific data poses a challenge in understanding and protecting this population. The New Zealand Department of Conservation (DOC) acknowledges this deficiency, classifying the conservation status of Oceanic Manta Rays as 'data deficient,' indicating insufficient information to assess their risk of extinction.

This research endeavour encompasses the creation of a nature documentary titled *Manta Watch - Discovering Aotearoa's Gentle Giants*, and aims to explore the nuanced techniques and strategies necessary to portray New Zealand's Oceanic Manta Rays authentically. The accompanying exegesis documents its processes and discoveries by focusing on filmmaking environments in the documentary's production.

Combining observational and poetic documentary styles, I merge personal encounters with Oceanic Manta Rays with reflexive interviews featuring prominent scientists engaged in Manta Ray research in New Zealand. The documentary's production involved diverse filmmaking environments, including solo expeditions in the Hauraki Gulf and collaborations with the citizen science project, Manta Watch New Zealand. Employing filmmaking as a research tool, I developed and employed various techniques such as aerial and underwater cinematography, interviews, hydrophone deployment, animation, editing, archival work, and sound design. Furthermore, this exegesis delves into the ethical dimensions of nature documentary filmmaking, highlighting the significance of responsible storytelling and conservation advocacy. Through this study, I contribute to the evolving discourse on nature documentary filmmaking, particularly within the context of New Zealand. Ultimately, this research aims to underscore the transformative potential of visual storytelling in raising awareness about Oceanic Manta Rays in New Zealand waters and advocating for their continued conservation efforts.

Table of Contents

List of Figures

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Rebecca Pratt

23rd May 2024

Intellectual Property Declaration

I retain copyright in all images and creative work produced and presented as part of this thesis apart from the following images that are the intellectual property of others listed below in the order they appear in this exegesis.

Rebecca Pratt

23rd May 2024

Ethics Approval and Consents

This research received approval from the Auckland University of Technology Ethics Committee (AUTEC) on 10 of September 2021, for a period of 3 years, until 10 September 2024.

ETHICS APPROVAL NUMBER: 21/259

All research was conducted in keeping with the regulations and guidelines of the approval. [Appendix 1]

Rebecca Pratt

23rd May 2024

Acknowledgements

I wish to thank my primary supervisor, Dr Arezou Zalipour, and secondary supervisor, Dr Christina Milligan, for their support, patience, and guidance throughout this research project.

In addition, I would like to express my appreciation to Lydia Green, Dr. Mark Erdmann, Edy Setyawan and Lily Kozmian-Ledward for their participation and cooperation during the interview section.

I dedicate this research to the continued, phenomenal work of *Manta Watch New Zealand*. May your research on these majestic, sentient giants continue to inspire many more storytellers into the future.

Chapter One

Introduction

"There is, one knows not what sweet mystery about this sea, whose gently awful stirrings seem to speak of some hidden soul beneath…"

- Herman Melville, Moby-Dick.

1.1 Positioning of the Researcher

Growing up along the rugged West Coast of the North Island of New Zealand, the beach was my playground, with enchanting rock pools scattered among seemingly endless stretches of black iron sand. Though some people would venture out to the waves to surf, my 'playground' was confined to a few metres beyond the water's edge; I was well aware that the Tasman Sea's strong currents, large swell, and fierce winds could make exploration beyond the beach dangerous. Like many others worldwide, I would stand at the tide's edge, gazing at the vast blue horizon, wondering about the mysteries hidden beneath.

As I grew up, my desire to discover the underwater world grew. I obtained my PADI SCUBA diving licence and volunteered with *Project Reef Life South Taranaki*, a citizen science group researching offshore reefs. This experience served as my gateway into marine conservation, propelling me to communicate the remarkable marine biodiversity off the South Taranaki coast to a broader audience. Our collective efforts were recognized with prestigious accolades, including the *Green Ribbon Award* (2018), *Wyland Award* (2019), and *Terry Healy Award* (2019), for our commitment to showcasing life beneath the surface.

My fascination with ocean documentaries deepened as I recognized their ability not only to capture the beauty of the underwater realm but also to illuminate lesser-known marine environments. This passion led me to pursue a degree in Communication Studies at Auckland University of Technology, where I directed my first nature documentary, *Reef Revolution* (2019), as part of my studies. The film garnered recognition internationally, winning an award at Idaho's Fish and Wildlife Film Festival, earning semi-finalist status at the Vienna Science Film Festival, and being selected for screening at the Oxford International Film Festival and the United Nations Arts x SDGS

Festival. It was important for the first showing of the film to be for the local South Taranaki community, who had featured in it, and whose environments the film had been shot in. In early 2021, I was approached by Manta Watch New Zealand (MWNZ), a citizen science project dedicated to raising awareness about the preservation of oceanic manta ray populations and their habitats in New Zealand waters.

Figure 3, An Oceanic Manta Ray's relative to the average human.

I began to contemplate the potential of utilising the documentary format to raise awareness about oceanic mantas in the waters of New Zealand. Over the next few months, I decided to volunteer with MWNZ, taking on the role of Media Advisor. I aligned with the words of documentary filmmaker, Shanon Walsh (2024), who states that when preparing to make a documentary, "you can consider volunteering as well if there is a project or initiative where knowledge holders might be involved. This is a great way to gain experience and valuable knowledge as well as building relationships" (p. 42).

My intention was to make a documentary that would put a spotlight on MWNZ's endeavours while crafting a narrative centred on hope and resilience. I recognized the inherent challenges of filming such a documentary. Oceanic Manta Rays had never been documented in New Zealand waters for the purposes of leading a documentary film. Encountering these magnificent creatures in the wild is a rarity, let alone capturing diverse scenes illustrating their behaviours. To achieve this, I understood that I would need to immerse myself in unfamiliar and demanding filming environments with no guarantee of obtaining the critical footage needed. I understood that should the rare and unexpected sighting event happen, it would be a pressured moment that would need swift evaluation and action. Respect for these highly intelligent animals would always be a priority and could not be compromised

by desire for footage.

1.2 Background of the Study

Globally, Oceanic Manta Rays are classified as critically endangered by The International Union for Conservation of Nature (IUCN), while New Zealand's Department of Conservation (DOC) categorises them as 'data deficient (Department of Conservation, n.d., para. 1)' Consequently, gathering data on the welfare of New Zealand's Oceanic Manta Ray population is a matter of significant concern for the international community.

Manta Watch New Zealand serves as a central hub for collecting sightings of Oceanic Manta Rays across Aotearoa New Zealand, aiming to determine whether these mantas are seasonal visitors or represent a distinct population (MantaWatch, 2023). Established by marine biologist Lydia Green in 2019 and becoming a registered charity in 2020, the project seeks to address this mystery and enhance conservation efforts for Oceanic Manta Rays in New Zealand's waters.

The project relies heavily on citizen science, with people reporting their sightings of oceanic manta rays, which are then analysed by the MWNZ team. According to the MWNZ website, by consolidating verified sightings data–including historical and real-time reports from various sources such as citizen science, field observations, and photo identification–MWNZ has developed a comprehensive sightings and identification database (MantaWatch, 2023). Over time, this data, when cross-referenced with temporal and environmental variables, will provide valuable insights into the seasonal distributions and critical habitat use of New Zealand's manta rays (Green, 2024).

The mission of MWNZ is to conduct scientific research and monitor the oceanic manta ray populations in the region. Through collaboration with local communities, universities, research institutions, and government agencies, MWNZ conducts field studies to gather data on manta ray distribution, behaviour, and population dynamics. By utilising technologies like satellite tagging, researchers are gradually gaining a better understanding of these elusive creatures and sharing crucial insights with key stakeholders to support conservation efforts (Green, 2024).

In addition to scientific research, MWNZ places a strong emphasis on education and community engagement. The organisation actively involves community groups and organisations in their work and raises awareness about manta rays through outreach activities at schools and public spaces.

As a practice led researcher, I recognised the value of collaborating with a citizen science project like MWNZ. The team already had the logistical infrastructure in place to conduct research in the Hauraki Gulf and possessed valuable knowledge about the natural habitats of these elusive animals. Within a few weeks of meeting the MWNZ team, I embarked on a two-week sailing expedition with them, documenting their research on Oceanic Manta Rays. This collaboration not only provided logistical support but also laid the groundwork for exploring the complexities of filmmaking environments when making a nature documentary about manta rays in New Zealand.

In this research, documentary is selected as the research method to convey the reality of a researcher's personal experience because of its powerful way to convey lived experience. Visual storytelling has the ability to capture aspects that are challenging to express through words and data alone. Documentary is known for its ability to capture nuance, emotion, and other complex dynamics onscreen, something that is extremely beneficial when working with wild yet highly intelligent animals such as Oceanic Manta Rays.

There were many questions I had to consider when I selected documentary filmmaking as the research method to present this story: What types of environment would I be engaging with? What kind of equipment would be required to authentically tell this story? What kind of functions and modes should I select for the filming of this documentary? What kind of editing choices would I make?

This research project is practice-led research. It consists of two parts; a short documentary as the creative component and an exegesis that provides conceptual background and critical reflection. This practice-led research allows me to examine the complexities of nature documentary filmmaking environments in making a documentary about Oceanic Manta Rays, and the documentary strategies and choices I made within these complex environments.

While New Zealand is internationally renowned for its pristine wilderness and wildlife, the largest weight of academic studies focus on its terrestrial environments rather than marine ones. This is despite New Zealand boasting the fourth largest marine territory globally. Further research is warranted to comprehend the intricacies of oceanic filmmaking environments when storytelling within Aotearoa’s marine space, a need that is especially crucial when raising awareness for marine wildlife on the brink of extinction.

In summary, this research documents and scrutinises the researcher’s personal journey of employing various filmmaking techniques to address the research question. It contributes to practice-led research

within New Zealand, particularly in the context of nature documentaries.

1.3 Research Question

This research project focuses on one central question:

What are the complexities of filmmaking environments when making a nature documentary in Aotearoa?

1.4 Significance of the Study

This research makes valuable contributions to the realm of New Zealand nature documentary filmmaking, both in terms of practical filmmaking techniques and scholarly understanding. By delving into filmmaking process and outcomes, I will have an opportunity to expand my skills in documentary filmmaking while adding depth to the existing knowledge base on nature documentary production in New Zealand. This is especially relevant given the current environmental challenges highlighted by Kyle Murdoch (2019), managing director of Natural History New Zealand (NHNZ), who stresses the importance of documentaries in portraying the realities of these changes.

Furthermore, this research offers a range of filmmaking techniques, ideas, and inspiration for future oceanic nature documentaries. By sharing insights gained from this study, it provides a useful resource for filmmakers interested in exploring similar subjects, promoting ongoing exploration of this field.

1.5 Exegesis Breakdown

This exegesis comprises five chapters.

Chapter One: Introduction

This chapter outlines the personal experiences and theoretical motivations that underpin the research. It also offers an overview of the main focus of this project.

Chapter Two: Methodology

Detailing the theoretical investigation of practical research and documentary as research, this

chapter clarifies the methods employed in this research project.

Chapter Three: Review of Contextual Knowledge

Containing background information and context relevant to the research project, this chapter explores relevant documentaries, provides in-depth analysis, and presents case studies relating to the research. Key areas of interest include documentary functions, responsible representation, and examples of nature documentaries.

Chapter Four: Critical Reflections

This chapter offers a reflective journal analysis of the methodology, the filmmaking environments encountered, as well as the filmmaking techniques and strategies employed in creating this documentary.

Chapter Five: Conclusion

Concluding the exegesis, this chapter summarises the research findings, discusses their significance, acknowledges limitations, and suggests ideas for future research.

Chapter Two

Literature Review

"People like to look at animals, even to learn from them about human beings and human society. … We polish an animal mirror to look for ourselves."

- Harraway (1991)

2.1 Introduction

John Grierson, a pioneering figure in documentary filmmaking, famously defined documentary as "the creative treatment of actuality" (Grierson, 1947, p. 8), a definition that has endured for nearly a century due to its adaptability. Despite the evolution of technologies in documentary making, Grierson's definition remains popular for its flexibility to filmmakers (Honess Roe, 2013, p. 3). Within the documentary realm lies nature documentaries. These films are known for their ability to prompt audiences to reflect on their relationship with reality, specifically nature's wonders, ecological challenges, and human-animal relationships (Rust et al., 2012, p. 110). In developed countries, natural history documentaries are the most important source of information about animal life (Pollo et al., 2009).

This chapter begins by examining the variety of tendencies and modes observed within the documentary space, drawing on the works of Renov (1993) and Nichols (2010) respectively. This is followed by an examination of nature documentaries, looking at the earliest documentation of this genre. The review then looks to further explain Oceanic Manta Rays, helping centre the literature review around this particular research enquiry. Much of this review looks at defining filmmaking environments, particularly the evolution of filmmaking environments from the Hollywood studio system era to present-day nature documentaries. Finally, this review concludes with two case studies, namely nature documentaries *The Cove* (2010), directed by Louie Psihoyos, and *Blackfish* (2013), directed by Gabriela Cowperthwaite.

2.2 Documentary Tendencies and Modes.

Michael Renov, a renowned teacher and researcher of the cinematic arts, outlines four tendencies of documentary in his book, 'Toward a Poetics of Documentary' (1993). He organises these tendencies

in order and in doing this, shows that each are products of historical, cultural and technological contexts.

The four tendencies are;

1. To record, reveal, or preserve; this tendency reveals intricacies and nuances of various subjects and seeks to foster a deeper understanding of the world. It extends beyond mere documentation, paying special attention to the ethical responsibility of safeguarding cultural heritage, memories, and voices that might otherwise be lost.
2. To persuade or promote; this tendency reveals the strategic use of cinematic techniques and filmmaking strategies to influence viewers' beliefs. This tendency is often observed in narratives that aim to advocate for specific ideas, causes, or social change.
3. To analyse or interrogate; this tendency engages with the complexities of truth, representation, and meaning.
4. To express; this tendency conveys personal perspectives and emotions. It prioritises the exploration of subjective experiences and creative storytelling techniques.

Each one of these tendencies act as a way to enlarge the space between the image and its representation, so as to allow for people to observe the aesthetic and political interpretations with a larger remit of possibility. While Renov (1993) cautioned against rigid categorization, emphasising the fluidity and interplay among the tendencies (p. 21), the tendencies are still rather generalised for the depth and breadth of modern day documentaries. When discussing the model of these tendencies, Natusch and Hawkins (2014) state “by [Renov’s] own admission a difficult model to adapt to the nuances of contemporary documentaries” (p. 103).

Perhaps a greater, more nuanced, and comprehensive mapping of documentary films is observed by American film scholar Bill Nichols (2010). Nichols’ six modes are;

1. Poetic Mode; The poetic mode of documentary shows features like breaking the narrative into component parts, focusing on feelings, being expressive, and ambiguity around the meaning of the film.
2. Expository Mode; The expository mode of documentaries aims to share information or convince people of something. It uses pictures and videos to support the narration. Usually there is a noticeable, strong voice speaking over the images, like someone might observe in news or TV shows.

3. Observational Mode; In the observational mode of documentaries, filmmakers record scenes as they happen. They try to stay neutral, like a bystander, using a camera that doesn't interfere, just watches what's going on.
4. Participatory Mode; In the participatory mode of documentaries, interviews are important because they provide reliable information about the topic.
5. Reflexive mode; In the reflexive mode of documentaries, the focus is on showing how the film is made.
6. Performative mode; In the performative mode of documentaries, subjectivity is emphasised. Filmmakers intentionally record scenes that are emotionally powerful or have a unique perspective to show their own vision or make the story stronger.

Nichols (2010) expresses that filmmakers are under no obligation to select a single mode; he rather suggests that documentary films might not fall exactly into one of his six modes, but might be a blend of a variety of modes. Nichols (2010) explains that, “most films incorporate more than one mode, even though some modes are more prominent at one time or place than another. These modes serve as a skeletal framework that individual filmmakers flesh out according to their own creative disposition” (p. 143). As observed by Natusch and Hawkins (2014), this type of hybridisation allows for a documentary narrative to be more deeply enriched. Natusch and Hawkins (2014) continue on to state that “Nichols’ model can be even more useful as a tool of analysis at the micro level or more specifically through a scene-by-scene dissection” (p.103).

In this research, I as a practice led researcher was deeply drawn to Nichols' notion that within a documentary there is often a melding of modes. Additionally, I like Natusch and Hawkins' sentiment that narratively speaking, a film can achieve greater depth when filmmakers combine modes. As a practice led researcher, this literature allowed me to confidently experiment and imagine a variety of possibilities for the narrative structure of the documentary I directed about Oceanic Manta Rays. After much consideration, I decided to employ a mix of Nichols’ participatory, poetic, and observational modes.

2.2.1 - Participatory Mode

The participatory mode appeared around 1960 due to the relatively new ability of filmmakers to record sync sound on location (Nichols, 2010). Here, filmmakers are able to have interactions with the documentary subjects rather than unobtrusively observing them through the lens of the camera. Nichols (2010) states that participatory mode is where “participatory documentary gives us a sense of

what it is like for the filmmaker to be in a given situation and how that situation alters as a result" (p. 139). Nichols continues on to say that "the filmmaker's presence and perspective often contribute significantly to the film's overall impact" (p. 139). This mode typically involves presenting and resolving puzzles or mysteries through the actions of characters, often by way of interview.

For this research, I made a documentary about the Manta Watch New Zealand citizen science project. Upon analysing a number of the documentary scholars, there seems to be a shared sentiment that when making documentaries about specific communities, there is an inclination to take the participatory approach and include the filmmaker as a participant in the film by way of participating or doing the voice over (Zalipour & Nicholson, 2023). Naturally, I was placed within many unique filmmaking environments when documenting the work of MWNZ and as a practice led researcher, I believe my presence and perspective contributed a great deal to the impact of the film. I looked to harness the use of voice over in crafting the narrative arc of the documentary, and embraced the use of Nichols' participatory mode.

2.2.2 - Observational Mode

The observational mode involves capturing genuine moments of reality or presenting factual information about a specific subject or issue (Nichols, 2010). The observational mode appeals to the nature documentary genre, as filmmakers are often working in unpredictable environments where the action is not apparent from the outset (Nelson & Bertalan, 2015). Nichols (2010) states, "observational films exhibit particular strength in giving a sense of the duration of actual events" (p. 135). Documentary participants are interested in each other or their projects, often ignoring the filmmakers around them as they are concerned with their own issues or crises (Nichols, 2010).

However, MacDougal (1998) argues that while observational filmmakers strive to become "quasi-invisible, easily forgotten flies on the wall" (as cited in Marquis, 2011, p. 10), filmmakers inevitably "forever interfere with what it is they seek" (MacDougall, 1998, as cited in Marquis, 2011, p. 48). The paradoxical nature of the observational filmmaking process resonates with my unique position as a practice led researcher, as I both lived and filmed onboard an active research vessel. While I aimed to blend into the background and observe scientists surveying, collecting data, and tagging Oceanic Manta Rays, my presence onboard the vessel was undeniable. While my aim as an observational practice led researcher was to exert minimal influence on the research being undertaken onboard, due to the limited crew size there was the realistic expectation that I would help with this research when required. Hence, for this research I overlapped and mixed both participatory and observational modes, switching

between modes depending on the filming environment I was placed in at any given moment. In doing so, I embraced Nichols' notion of allowing one mode to be more prominent at one time or place than another (Nichols, 2010).

2.2.3 - Poetic Mode

According to Nichols (2010), "poetic mode often sacrifices direct engagement with specific individuals to construct formal patterns or compelling perspectives" (p. 132). Nichols' poetic function can be seen as building upon Renov's express tendency, which involves using various techniques such as cinematography, editing, and music or sound effects to create 'explosive effects' that can evoke emotional responses in viewers (Renov, 1993, p. 33). This function relies on a form of learning by affect or feeling, prioritising tone and mood in narrative building over making a clear argument (Nichols, 2010). Additionally, poetic narratives do not necessarily aim for resolution; instead, they offer a subjective interpretation and tend to be more experimental compared to other documentary functions (Baron, 2023). In the context of this nature documentary, the poetic function provides the ability to create a deeply intimate connection between the wild oceanic manta rays and the audience.

2.3 Nature Documentary

Nature documentaries portray factual depictions of natural processes and wildlife. As stated by Bousé (2000), they aim to "engage audiences by educating, entertaining, and inspiring them about the beauty, diversity, and fragility of the natural world" (p. 11). Because the majority of people's real life interactions with animals are generally with domesticated species, nature documentaries are often the main source of knowledge about many species for many lay people not trained in the biological sciences (Pollo et al., 2009). Nature documentaries often incorporate elements such as stunning cinematography, scientific expertise, and environmental messages to enhance storytelling (Bousé, 2013). The filmmakers of such films have the capacity to impact audiences on both cognitive and emotional levels, influencing their environmental sensitivity toward the species depicted (Barbas et al., 2009).

The earliest history of nature documentary filmmaking was first documented in Palle B. Petterson's *Cameras into the Wild* (2011). Petterson's study explored the evolution of nature documentaries between 1895 and 1928. Petterson stated that early filmmakers had "an ambivalent attitude toward

wildlife preservation"(2011, p. 179). Such ambivalence was largely due to filmmakers being driven by profit and the lure of adventure rather than the plight of the wildlife they were filming (Petterson, 2011). With regard to such filmmakers, Petterson (2011) surmised that "one minute they would speak solemnly of the terrible reduction in the number of wild animals; the next they would speak disdainfully of a particular species" (p. 179).

From the earliest days of nature documentaries to the present day, one of the fundamental conditions that makes nature documentaries possible is the presence of animals that can be encountered or observed (Collard, 2016). However, when filmmakers interact with nature, numerous power dynamics come into play. According to Sheehan (2008), nature documentaries are a medium "founded on the metaphysical privileging of human beings over animals" (p. 118). Many scholars have explored the power dynamics of encounters depicted in nature documentaries, often highlighting actions that harm animals (Mitman, 1999; Bousé, 2000). According to Collard (2016), the "invasive treatment of wild animal bodies and lives must be considered alongside any positive potential for moving imagery to 'capture' animal life and electrify viewers" (p. 472). Nature documentary filmmakers should not only be aware of the power dynamics occurring during the production of nature documentaries, but must also be observant of the power dynamics occurring during the post-production. Filmmakers must be cautious of not anthropomorphizing animals excessively in the edit, as this risks distorting the reality of the natural world (Calarco, 2020). There are many definitions of anthropomorphism in nature documentary scholarship, but generally scholars agree that it is a term used to describe the weighting of the human experience over that of the animal kingdom. According to Rowley and Johnson (2016), "anthropocentrism may be defined as a human epistemology that privileges human beings' values and experiences as the centre for understanding the experiences of other life forms" (p. 826). Additionally, Evernden (1992) tells us that anthropomorphism is where "instead of attributing a human form, emotion, or sensation to something, we [attribute] a human explanation to the nonhuman world" (p. 53). Similarly, Elliot (2001) tells us that anthropomorphism "is the sign of an un-scientific disposition towards non-human nature" (p. 289).

Often, the need to craft an engaging narrative for the audience leads to misleading editing or voice over of animal behaviour, favouring 'story over reality' (Brylla & Kramer, 2018). For example, Everden (1992) states "we see two mammals bumping each other or making loud noises, but what we report is often not a simple description, but a conclusion: the animals are exhibiting 'aggression', or perhaps 'competition'"(p. 53). One way in which nature documentaries can avoid anthropomorphism is by giving explanations of animal behaviour in agreement with research conducted by those who specialise in it" (Pollo et al., 2009). According to Pollo et al. (2009), this approach avoids

anthropomorphic tendencies by giving viewers “the chance to get the ‘state of the art’ of human knowledge about animal life” (p. 9).

Because of their informative yet entertaining nature, nature documentaries typically have broad audience appeal. For example, BBC’s *Blue Planet* (2001) series reached audiences across 240 territories (Dunn, 2020; Yong, 2018) and *Chasing Coral* (2017) and *My Octopus Teacher* (2020) have garnered widespread acclaim and large viewership numbers, demonstrating their impact (Pulver, 2021). However, Pollo et al. (2009) suggests that there ought to be an understanding that such nature documentaries “relate data from science, but they are not scientific reports” (p. 11).

Rather, these films mix science, narrative, images, and more. The film-makers' point of view “affects the way these are mixed” (p. 8). In today’s world, nature documentary filmmakers must be acutely aware of the power their films have on audiences. According to Jones et al. (2019), nature documentaries have the potential ability to support conservation organisations and foster positive attitudes toward environmental issues.

2.4 Oceanic Manta Rays in New Zealand

New Zealand's Oceanic Manta Rays (*Mobula alfredi*) inhabit New Zealand's coastal waters, captivating the attention of scientists and citizens alike. Some individuals have wingspans of up to seven metres (Green, 2024) making them among the largest oceanic rays globally. They are commonly found in the subtropical and temperate waters surrounding New Zealand's North and South Islands, often frequenting offshore islands, seamounts, and areas with abundant plankton, which serve as their primary food source (Green, 2024).

Despite their size, New Zealand's manta rays are filter feeders that feed on microscopic organisms like zooplankton and small fish. Much remains unknown about their lives, including their population dynamics, migration patterns, and ecological role within New Zealand's marine ecosystems (Green, 2024). Limited research and monitoring efforts have hindered a comprehensive understanding. Encounters with manta rays in the wild can be sporadic and unpredictable, further complicating research efforts.

Ongoing initiatives, including citizen science programs and collaborative research endeavours, aim to address the existing data deficiencies and engage a wider audience. Examples of such programs

include *Manta Watch New Zealand*, as well as *Manta Project Fiji, Initiative Manta En Nouvelle Calédonie, Raja Ampat Manta Project, Manta Project Palau, Papua New Guinea Manta Project* and *Thailand Manta Project* among many others (MantaTrust, 2024). The ultimate goal is to ensure oceanic manta rays long-term conservation and protection amidst growing threats such as habitat degradation, entanglement in fishing gear, and the impacts of climate change on these critically endangered rays and their marine habitats.

2.5 Responsible Representation in Nature Documentaries

Numerous theorists, including Renov (2012), Nichols (1991), Bruzzi (2006) and Marquis (2011), have argued against the notion of purely objective documentaries. They contend that the filmmaking process involves multiple layers of construction–such as topic selection, camera positioning, lighting, and sound–which renders pure objectivity unattainable (Barnouw, 1993). Instead, filmmakers are tasked with gathering evidence from the world around them and representing subjects ethically, particularly when making directorial and editorial decisions (Nichols, 1991).

In wildlife documentaries, filmmakers must grapple with the challenge of representing animal behaviour without the animals' ability to provide consent or contextualise their actions on screen (Bousé, 1998). In one of the early studies on documentary practice, Bousé highlights the common use of voice-over narration in interpreting animal behaviour and vocalisations, cautioning that this approach may not accurately represent the nuances of animal communication (Bousé, 1998). He emphasises the lack of formal ethical guidelines for filmmakers regarding voice-over narration, describing existing standards as "vague" (p. 120).

Similarly, Delmotte (2017) raises concerns about the limited ability of voice-overs to authentically portray animal behaviour in wildlife documentaries. After analysing various terrestrial wildlife documentaries, Delmotte identifies a prevalent vococentric theme, wherein animal noises are often overshadowed by music and narration to enhance audience engagement (Delmotte, 2017, p. 73). She suggests that instead of emphasising *vococentrism*, filmmakers should prioritise *sonorocentrism*, which involves tuning into the shared soundscape of both human narration and animal sounds (Delmotte, 2017, p. 72). In this research, I advocated a balanced approach that incorporates both human and animal voices in the nature documentary produced. By placing emphasis on *sonorocentrism,* I hoped to achieve a more accurate representation of the sonic world surrounding Oceanic Manta Rays.

2.6 Filmmaking Environments

Filmmaking environments encompass a wide range of elements. On one hand, they include the physical spaces where films are created, like studios. On the other hand, they encompass the non-tangible yet highly impactful cultural, social, and economic factors that shape the filmmaking process. Central to this research was defining filmmaking environments clearly, so that I could use the pre-existing literature to guide me in answering my research question, 'What are the complexities of filmmaking environments when making a nature documentary in Aotearoa?' In the following paragraphs, I delve into the evolution of filmmaking environments and nature documentary environments.

Evolution of Filmmaking Environments

Leading film scholars and practitioners Kirstin Thompson and David Bordwell were the first to publish an extensive history that looks at origins of the pivotal role filmmaking environments play in film productions (Thompson et al., 2022). When the Hollywood studio system started in the early 1920s, film studios would be involved with all elements of a film's production, including the filmmaking environments (Thompson et al,, 2022). Filmmaking environments are defined by Thompson et al. (2022) as "sound stages, backlots, editing rooms, administrative offices" (p. 24). These filmmaking environments were conceptualised by humans and designed to be as cost-effective as possible.

Former director of UCLA Film & Television Archive and professor for Critical Studies, Jan-Christopher Horak, has written extensively on both tangible and intangible filmmaking environments. Horak (2006; 2014) speaks to how filmmaking environments are fluid and constantly in motion. For example, in *Wildlife Documentaries: From Classical Forms to Reality TV* (2006), Horak traces the history of the 16mm film from its introduction by Kodak in 1923, to its decline in the 1980s, to the present time, where the trend of using 16mm film has been on the rise. Shown in Horaks' example film stock, film processing labs and cutting floors, as technologies emerge and decline, so do their filmmaking environments (Horak, 2014).

With regard to intangible filmmaking environments, Horak's book *Saul Bass: Anatomy of Film Design* (2014), focuses on the life of the Academy Award winning, highly influential filmmaker, Saul Bass. With regard to filmmaking environments, Bass, according to Horak (2014), 'transformed film industry conventions that had remained relatively stagnant for decades' (p. 3). Bass was known to "burst" onto the creative floors, film sets and productions of the 40's, 50's and 60's, fiercely advocating for the importance of the designer in the creation, and production of a film's cinematic world (Horak, 2014, p. 3). By examining Bass's life in cinema, Horak shows that controlled film environments are subservient

to those in the creative roles. For example, architectural features were tailored to the film production needs of Bass, such as soundproofing and specialised lighting. Indeed, film environments can grow and are evolving throughout all stages of production (Horak, 2014). Upon delving into the spatial organisation of studios, Horak explores how different areas like sound stages and production offices impact collaboration and creativity. Upon doing so, he shows how each filmmaking environment is shaped by the creative persons involved in them, and this greatly influences the end product released to audiences.

Further investigating how documentaries are fluid and constantly in motion, is esteemed professor Mark Shiel, a researcher at the forefront of Film Studies and Urbanism. Shiel's work examines the ever evolving discourse on filmmaking environments. He examines pivotal transitions from the traditional Hollywood studio system, whereby film studios, with their set geographies and management systems were fully developed, little self-contained cities (Shiel, 2012; Hain, 2019), to the more decentralised model of independent production, which Shiel explains is due to the rise of digital filmmaking and rapid globalisation of the film industry (Shiel, 2012). Towards the end of the 1956's, there was an interest in documentary filmmaking due to advances in technology and a desire for stories of real-life subjects and environments. Embracing the freedom documentary offered from studio constraints, filmmakers could venture to rural environments and thus, there was an explosive reshaping of filmmaking environments due to the endless possibilities of what a production could look like and the types of stories that could be told (Shiel, 2012).

Nature Documentary Environments

Nature documentaries portray factual depictions of natural processes and wildlife all around planet earth and beyond (Bousé, 2000). As such, there are thousands of possibilities when it comes to the tangible and intangible filmmaking environments involved in documentary filmmaking (Bousé, 2000)(Mitman, 2009)(Palmer, 2010). With the boom in new technologies, nature documentary filmmaking environments has become accessible to many more filmmakers. Veteran producer and film editor Chris Palmer explains in his book *Shooting in the Wild: An Insider's Account of Making Movies in the Animal Kingdom* (2010), that "cameras are smaller and lighter, lights are more efficient, and editing tools are more compact" (p. 34). These advances make it easier for filmmakers to access, document and explore filmmaking environments that are remote, wild and often untouched (Palmer, 2010). Palmer continues on to explain how present day nature documentary filmmakers can now fit all production equipment into a single backpack, and with this the natural living world becomes one big film set (Palmer, 2010).

However, Palmer states that with greater horizons of possibility comes greater responsibility for

nature documentary filmmakers who dare venture out into new territory, stating “the industry has its share of procedures, directors and camera operators who value getting a great shot over the welfare of the animals they are filming” (p. 38). He continues on to express that filmmakers have been known to abuse both tangible and intangible nature documentary environments for what he describes as a “money shot.” In a tangible sense, this involves manhandling, exploiting, endangering and sometimes killing wildlife for viewers pleasure and producers profit (p. 39). In an intangible sense, an example could be filmmakers refusing to listen or engage with reputable scientists or knowledge holders when out working in the field.

Palmer (2010) carefully crafts an argument that there is always a dilemma when working in nature documentary filmmaking environments, “even the most careful cameramen face an ethical dilemma. They want to obtain memorable and exciting footage, but getting too close disturbs the animals and, ironically, the “natural” behaviour the filmmaker is trying to capture” (p. 41). Professor and filmmaker Tom Veltre echos Palmers sentiment, stating “Once presenters like Steve Irwin showed that you could make a show at one-tenth the cost of the old traditional blue-chip natural history shows [and] that pulled in double or triple the audience, it kicked off a ‘race to the bottom’ for producers of shows featuring inappropriate, demeaning, and sometimes dangerous interactions with creatures that would prefer to be left alone” (Mitman, 2009, p. 151 as cited in Palmer, 2010, p. 41). Palmer explains that navigating the inherent ethical dilemma of the nature documentary filmmaking environments, requires a combination of taught and practised knowledge, ethical values and gut instinct (Palmer, 2010). Palmer (2010, p. 275) explicitly explains eight steps toward reform for interacting in nature documentary filmmaking environments which are as follows:

1). Start with a statement of intent.

2). Work closely with reputable scientists and knowledge keepers including indigenous people.

3). Make conservation films that entertain.

4). Use new media effectively.

5). Disclose how the film was made and establish an ethics ranking system.

6). Practise green filmmaking.

7). Diversify the wildlife filmmaking community.

8). Improve ethics training and guidelines.

In this study, my goal is to incorporate many, if not all, of Palmer's eight steps for improving my filmmaking process so as to tread as ethically and unobtrusively into the tangible and intangible nature documentary filmmaking environments I find myself in. Additionally, I aim to harness intuition and gut feelings to guide my creative and artistic processes, something that can lead to alternative ways of knowing and representing (Walsh, 2024).

2.7 Examples of Nature Documentaries

Numerous nature documentaries set in the ocean, such as *Chasing Coral* (2017), *Planet Ocean* (2012), *Mission Blue* (2014), *Playing with Sharks* (2021), *My Octopus Teacher* (2020), and *The Silent World* (1956), often centre around a particular species. Even those that are focused on broader ocean environments, like *Planet Ocean* (2012) and *The Silent World* (1956), tend to have broken down segments of the film to highlight specific marine life. For instance, *Planet Ocean* (2012) transitions from Mackerel (18:33) to Swordfish (19:14) to Manta Rays (19:56), and so forth. Similarly, *The Silent World* (1956) shifts from Sperm Whales (50:17) to Sharks (55:12) to Fish (1:12:30).

Upon examining the narrative structure of the documentaries I sampled, I recognized Oceanic Manta Rays as compelling subjects for leading a documentary. Firstly, their critically endangered status, as noted by the IUCN (Pierce, 2021), imbues their conservation story with a sense of urgency and relevance. Secondly, their remarkable intelligence and extensive oceanic migrations make them captivating subjects for the screen (Green, 2024). New Zealand's Oceanic Manta Rays, for example, are known to migrate from the country's coastal waters (Rohner et al., 2013) to the shallow reef environments of Fiji (Gordon & Vierus, 2022) and Tonga (O'Malley et al., 2013), and back again. Their combination of intelligence and agility renders them enigmatic and visually compelling animals for cinematic representation.

The Cove

The Cove (2010) is an Academy Award-winning nature documentary directed by Louie Psihoyos and edited by Geoff Richman, which sheds light on the notorious annual dolphin cull in Taiji, Japan. This film emerged during what esteemed film professor Gregg Mitman terms the 'green wave' of environmental documentaries, which gained prominence in the early 21st century. Mitman, as cited by Cronon (2015), acknowledges this film as an example of the emerging trend of environmental films focusing on art, science, and social activism (Foreword, p. xv).

The Cove can be observed as a film that has a strong narrative of social activism and social justice. In terms of its narrative structure, this documentary devotes just under a third of its runtime to the verité footage capturing the planning and execution of the mission to expose the dolphin cull in Japan (Smaill, 2016). Psihoyos and Richman build up the remaining two-thirds of the film's run time by incorporating various other materials to both enhance and educate viewers about the plight of the dolphins. As noted by Smaill (2016), regarding the documentary's narrative arc, the "lack of constant forward motion is not a drawback, as each additional element strengthens the emotional impact of the overall story" (p. 152).

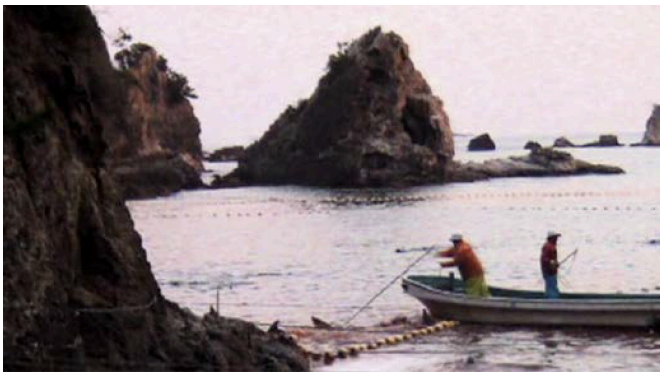


Figure 4, The Cove (2009) Bottlenose dolphins trapped by nets in the killing cove at Taiji, Japan.

The Cove (2010) holds significance for this research due to its innovative approach to narrative construction, often described as a 'patch-work approach.' This documentary skillfully utilises interviews, archival material, and inventive technical solutions to engage and captivate its audience.

By weaving together multiple storylines and elements, this documentary gradually reveals layers of suspense that elicit intense emotions from viewers.

Film scholar Janet Walker (2013) offers an additional insightful analysis of this documentary by employing an interdisciplinary film studies method that integrates animal science and geography. She explores the convergence of two techniques: 'eavesdropping,' a practice in marine mammal research (Dudzinski et al., 2008), and 'observation,' a documentary function or mode (Nichols, 1991). Walker examines how the filmmakers' collection of audio recordings and footage from the bay in Taiji expands the documentary's scope beyond merely documenting the cull to reshaping the natural environment for audiences. Her analysis underscores how film techniques utilised in *The Cove*, such as submerged cameras capturing animal behaviour and hydrophones recording animal vocalisations, create a space in the documentary for viewers to "think across species" (Walker, 2013, p. 211). She suggests that this fosters a deep empathy from audiences that is informed by scientific understanding (Smaill, 2016, p. 152).

Figure 5, The Cove (2009) The underwater seascape of 'the cove,' turned red with dolphin blood, captured by a planted, submerged camera.

As discussed in the Critical Reflection Chapter of this exegesis, I have encountered a series of filmmaking environments while undertaking this research. I experimented with ways in which marine mammal research and archive material could be combined with the documentary functions I chose to pursue this research. I aimed to document Oceanic Manta Rays not only in line with the work of Psihoyos and Richman, but also to find ways to reshape the natural environment onscreen for audiences.

Blackfish

Blackfish (2013), directed by Gabriela Cowperthwaite, is a highly acclaimed nature documentary that was nominated for Sundance Film Festival's Grand Prize. This film is another example of a film that

uses a substantial amount of powerful archival material and emotionally driven interviews to craft an impactful, gut-wrenching narrative. The film suggests that SeaWorld marine park provides inhumane treatment to the killer whales it has under its responsibility, endangering the marine biologists and trainers who work with these animals. Since its release, *Blackfish* has had wide audience appeal, grossing more than two million dollars when it was released in theatres (Rowley & Johnson, 2016). Additionally, after 24 showings on the CNN network, the film became CNN's most watched documentary of the year (Lipman, 2014), with CNN reporting a total viewership of 24.6 million (Rowley & Johnson, 2016). When the film was licensed to Netflix, it quickly became one of the most watched documentaries of the year on the streaming platform (Hemingway, 2014).

Although the SeaWorld marine park dismissed *Blackfish* as being "shamefully dishonest, deliberately misleading and scientifically inaccurate" (Allen, 2014), the power of this documentary's narrative was very impactful and an excellent example of the power nature documentaries have to make societal change. Given natural history documentaries are the most important source of information about animal life for most people (Pollo et al., 2009), Cowperthwaite's revealing of the horrors suffered by such sentient animals led to massive protests, lawsuits to free the killer whales, and ultimately legislative change (Rowley & Johnson, 2016). *Blackfish* is not alone in its cinematic ability to create social change, with many filmmakers commenting on nature documentaries' ability to impact society. As stated by Barbas et al. (2009), "filmmakers of such films have the capacity to impact audiences on both cognitive and emotional levels, influencing their environmental sensitivity toward the species depicted" (p. 66). This sentiment is reflected in the real-world impact Blackfish had upon release, with attendance at the Sea World marine park dropping by one million visitors, an 84% drop in income and a share price drop of 33% (Thomas-Walters & Veríssimo, 2021).

Blackfish (2013) holds significance for this research due to its innate ability to reflect humanity's impact on animals in the natural world and how their success or suffering is a mirror image of ourselves as humans. As stated by Haraway (1991), "people like to look at animals, even to learn from them about human beings and human society … we polish an animal mirror to look for ourselves" (p. 21). Scholars Rowley & Johnson (2016) demonstrate what they call an 'anthropomorphic anthropocentrism' using *Blackfish* as a case study. Anthropomorphic anthropocentrism refers to the method of flipping anthropomorphism (defined earlier in this literature review) to convey to humans the nature and extent of their knowledge (Rowley & Johnson, 2016). Rowley and Johnson put forward the argument that rather than looking at the ethics involved in evaluating nature documentaries for their use of anthropomorphism, we should equally look at anthropomorphism as a way to learn about humanity. As stated by Rowley and Johnson (2016),

“anthropomorphic anthropocentrism asks a supplemental question concerning what our rhetorical characterizations of ‘holding, cuddling, feeding, and photographing’ say about ourselves” (p. 828). By looking through the lens of Rowley and Johnson’s anthropomorphic anthropocentrism, *Blackfish* becomes more than a film solely about orcas; instead, it becomes a film that offers commentary on what a fulfilling human existence truly means (Rowley & Johnson, 2016).

Of great interest to this documentary is the realisation that audiences can learn about humans through all types of anthropomorphic rhetoric. While one must consider the ethics of overusing anthropomorphic techniques in filmmaking, one must also be aware of its potential benefits, especially in trying to garner public support for a cause or issue. Because this research employed several film techniques that are also used in *Blackfish*, consideration was given on how anthropomorphic anthropocentrism could potentially benefit the narrative structure of *Manta Watch*. Ultimately, because Manta Watch is a short documentary about the critically endangered manta rays at the heart of a citizen science project, there is a deep need for public engagement in their conservation efforts. Awareness of the benefits of anthropomorphic anthropocentrism becomes an important consideration for this research project.

Chapter Three

Methodology

3.1 Creative Practice Research

> "When it comes to filmmaking, methodology—'how one will go about studying any phenomenon' (Silverman 2000, p. 79)—and methods—'the specific research techniques' (Silverman 2000, p. 79) to be employed—provide the basis for rigour in the research enquiry."
>
> - Stoneman, 2019

This research follows the format of creative practice research, which methodologically expects that the creative work itself serves as a result of research and embodies the findings (known as research-led practice or practice-based research) (Kerrigan et al., 2018). Alternatively, creative practice research can also involve systematically gathering reflections on the filmmaking process to contribute knowledge to practice (referred to as practice-as-research or practice-led research) (Kerrigan et al., 2018). In creative practice research, the practitioner's perspective is central, meaning that in this study, I will be observing my own actions and creative choices and decisions while engaged in filmmaking and filmmaking environments.

Creative practice methodologies are often favoured by researchers in the field of screen production because they offer insights into how audio-visual meaning is constructed from the creator's perspective (Batty & Kerrigan, 2018). Therefore, this creative practice research focuses on observing the techniques and strategies I employed while navigating filmmaking environments for the production of a nature documentary about Oceanic Manta Rays. Kerrigan et al. (2018) emphasises that screen production research should contribute uniquely to the discipline through its forms, genres, and written research, whether about the product itself, the creative process, or other relevant contexts. Given that this study marks the first time Oceanic Manta Rays will be filmed for a nature documentary in New Zealand waters, I considered it a fertile ground for collecting observations that could enrich creative practice research.

3.2 Research Methods

Using filmmaking as research was a natural choice for addressing my research question: What are the complexities of filmmaking environments when creating a nature documentary in Aotearoa? In this study, I aim to uncover the realities of the filmmaking environments encountered during the production of a documentary about Oceanic Manta Rays. This research approach involves systematically reflecting on the process and thoroughly documenting my reflections.

Filmmaking Environments

While undertaking this research, there were two main types of filmmaking environments which I encountered, namely tangible and intangible filmmaking environments.

1. Tangible filmmaking environments included but were not limited to; filming on a sailboat, filming on remote islands, filming underwater, filming in the presence of wild animals, filming scientists, filming wild animals.
2. Intangible filmmaking environments included but were not limited to; filming within ethical guidelines, filming within personal spaces, filming within scientific values.

Reflective Journaling

As Kerrigan et al. (2018) notes, filmmaking can serve as a means of exploring and capturing phenomena through the lens of a camera and microphone. Throughout the filmmaking process, I have engaged in reflective inquiry into my own creative processes, spanning from pre-production to post-production. The resulting nature documentary serves as both the artefact and a source of research data and knowledge. I used a reflective journal as a research method to document my experiences, learnings and creative process, and take note of my reflections.

Reflective journaling serves a similar purpose to an ethnographer's field notes, allowing the researcher to evaluate the successes and failures of their understanding. This journaling process enables me, as the researcher, to capture data on my experiences throughout the creative process, which can later be analysed to generate new insights (Kerrigan et al., 2018).

Participants

There were four participants who took part in this nature documentary.

1). Lydia Green, Founder & Project Manager of Manta Watch New Zealand.

2). Dr. Mark Eardwood, Vice President of Conservation International's Asia-Pacific marine programs.

3). Dr. Edy Setyawan, Marine Ecologist at the University of Auckland.

4). Lily Kozmian-Ledward, Marine Biologist with The Far Out Ocean Research Collective.

Filming Locations

Hauraki Gulf

The majority of filming was conducted on Lily Kozmian-Ledward's 40 ft yacht '*Amadis*,' in the Hauraki Gulf of New Zealand. The Hauraki Gulf stretches between the Auckland region and the Coromandel Peninsula. It covers an area of approximately 4000 square kilometres and is home to a variety of marine life including dolphins, whales, seals, fish and seabirds.

Great Barrier Island

Additional filming was conducted on Great Barrier Island, at Lydia Green's residence which doubles as the Manta Watch New Zealand Headquarters.

Auckland University of Technology

Edy Setyawan was interviewed on campus at Auckland University of Technology grounds.

Health and Safety Measures

Health and safety measures are crucial on film sets to ensure the well-being of cast and crew. At the beginning of this research I identified some important protocols to ensure a safe shoot.

1). Conducting a thorough Risk Assessment. Prior to commencing filming I completed a risk assessment which identified and accounted for potential hazards.

2). First Aid. I ensured that a fully stocked first aid kit was part of the kit I brought with me to filming locations.

3). Equipment Safety. I made sure to inspect my equipment carefully prior to departing for the film shoot. I ensured that all component parts of my gear were accounted for and were in a safe working condition. Additionally, I was familiar with the operation of all equipment that I brought with me onboard so as to prevent damage to the equipment or injury to myself.

4). Weather conditions. By monitoring the forecast I was prepared to adjust my filming schedule as necessary. Additionally, by checking the weather multiple times a day I could take additional safety precautions in response to unfavourable weather conditions such as large swells, rain, extreme heat and cold.

5). A feasible film schedule. As the only practice led researcher onboard, I was responsible to adhere to the filming schedule I had created, ensuring I gave myself regular breaks so as to prevent fatigue.

Types of Equipment

For this film shoot, I decided to employ the following film equipment.

Visual

For camera work, I opted to use a Panasonic Lumix GH5. I fitted the Panasonic Lumix GH5 with two lenses, these were a Sigma 24 - 70mm lens and a Sigma 30mm prime lens. Additionally for underwater filming, I opted to use two Hero 10 Black Go-Pros.

Audio

For recording audio, I opted to use the Rhode VideoMic Pro Microphone which was attached to the body of the GH5. Additionally, I used Rhode Lavalier Go Microphones for the interviews.

3.3 Goals for the Project

The purpose of this research was to explore the filmmaking environments required to produce a nature documentary about Oceanic Manta Rays in New Zealand. This research required working with scientists, logistics of filming in the Hauraki Gulf of New Zealand, interviewing scientists and crafting a narrative structure.

As a filmmaker, achieving these goals entailed facing a series of challenges, including:

1. Communication with scientific experts.

2. Access to necessary technology for capturing footage, particularly for scenes involving

camera equipment, which required the use of drones, handheld cameras, and underwater camera gear.

3. Determining the best approach for filming live-action interviews (both audio and visual) at sea far off shore' as well as on board an anchored boat.

4. Ensuring safety while filming (both audio and visual) at sea.

5. Technical difficulties that arise while at sea or in areas with no signal coverage.

6. Adapting to unpredictable situations like changes in weather conditions or wildlife behaviour.

7. Balancing my dual roles as a crew member and practice led researcher.

To successfully navigate these challenges it was necessary to effectively and efficiently juggle multiple roles, serving as both the filmmaker, producer and editor of the documentary while also being available to perform the roles required of a crew member whilst being on board an ocean going vessel. This meant taking on responsibilities such as narrating and conducting interviews while also being prepared to assist with various tasks aboard the sailboat at a moment's notice. These tasks could range from relocating equipment to adjusting filming plans due to weather conditions or aiding in boat operations. Additionally, I had to carefully plan when and where to film, as I was joining a scientific crew to access specific environments necessary for the documentary. While the primary focus of the expedition was on live-action research of Oceanic Manta Rays, my secondary role was to capture this research and ultimately produce a documentary about it.

Figure 6, The sailboat 'Amadis' upon which I lived, observed and filmed.

Another objective of this project was to cultivate empathy and garner support for the efforts of

Manta Watch New Zealand among the audience. To achieve this goal, I employed various modes of documentary and harnessed a variety of filmmaking techniques and strategies with creative flexibility. This is extended upon further in Chapter Four *Critical Reflections.*

3.4 Research Outputs

There are two primary outputs of this research project, these being the short documentary film and this exegesis.

Figure 7, The film poster for nature documentary *Manta Watch - Discovering Aotearoa's Gentle Giants.*

This research adopts a creative practice approach, aiming to produce a compelling nature documentary that educates viewers about Oceanic Manta Rays in New Zealand and highlights the efforts of the MWNZ project in raising awareness about these endangered animals. The outcome of this research is documented through the filmmaking process, encompassing insights from pre-production to post-production, which are detailed in Chapter Four *Critical Reflections.*

The written component accompanying the nature documentary serves not to decode the film itself, but rather to provide an avenue for debate surrounding the synthesised knowledge presented in both the film and the written account, as suggested by Kerrigan et al. (2018). Through this exegesis, I aim to provide answers to my research question and offer new knowledge and valuable insights for filmmakers who are interested in filming Oceanic Manta Rays for documentary film or in making ocean based films that have an environmental message and call to action.

3.5 Conclusion

In the process of creating a nature documentary, filmmakers must navigate various environments, techniques, and strategies. To aid in this endeavour, a structured framework is essential for refining ideas and making informed decisions. In this creative practice research, I have used filmmaking as research for the framework with research methods including; reflective journaling and collecting feedback. These approaches enable critical reflection on my ideas and integrate academic literature to enhance the creative outcome.

Chapter Four

Critical Reflection

This chapter is a critical reflection upon the entirety of this research process, and aims to provide a discussion and a compilation of findings from my research journal and feedback received throughout the pre-production - post-production processes and filmmaking environments. Contained within this chapter are my personal evaluations of pre-production, production, post production and distribution in relation to the making of this documentary.

According to Russell and Kelly (2002), the researcher's reflective journal is a reflexive process, serving to "consistently evaluate and mediate one's unique expectations and understandings of the world" (p. 2). Within academia, it is explained as a tool that allows for a process of self-examination, which is shaped by the ideas, methods and actions of the researcher (Barry et al., 1999). Because this research is reflexive, it is therefore subjective, exploring the individual experience of the researcher.

Within this chapter, I reflect on four key areas; approaching this film, pre-production, the interview process and film techniques and strategies relating to the making of this documentary. Within the final segment of this critical reflection, I assess how the learnings and discoveries from making '*Manta Watch - Discovering Aoteroa's Gentle Giants*' have allowed me to find answers to my research question; What are the complexities of filmmaking environments when making a nature documentary in Aotearoa?

4.1 Approaching this film

> "The process of making natural history films is to try to prevent the animal knowing you are there, so you get glimpses of a non-human world, and that is a transporting thing."
>
> — David Attenborough, The Guardian 2017

Commencing the earliest stages of pre-production on *Manta Watch - Discovering Aotearoa's Gentle Giants* was a very natural process for me. When I started volunteering with Manta Watch New Zealand (MWNZ) as a Media Advisor, I became increasingly aware of how well these rays could be

the lead in a short documentary narrative, because of their sentient yet elusive nature, phenomenal agility and fascinating behaviours. Additionally, the more I spent time with this citizen science project, the more aware I became that there were a number of passionate, highly educated experts who were not only dedicating their working hours to the conservation of these endangered rays, but their holiday time, weekends and wider lives, something that makes for a highly compelling personal narrative.

From my earliest recollections of talking with Lydia Green, Founder of MWNZ, I remember her humble yet fierce passion echoing down the phone as she talked to me about a recent encounter with an Oceanic Manta Ray. I remember thinking that her energy, combined with her extensive knowledge of these rays, would make for an interesting interview subject for a documentary. Her demeanour reminded me of interviews I had watched with some of the greatest conservationists of our time, in particular Valerie Taylor (*Playing with Sharks*, 2021) and Sylvia Earle (*Mission Blue*, 2014). It was through being touched by Lydia's passion, that I as a practice led researcher became equally enamoured with Oceanic Manta Rays. The interpersonal working relationship that I as a practice led researcher built with marine scientist Lydia, could be observed as the first filmmaking environment I encountered. Bearing in mind Palmer's eight steps of reform (2010), I tried to foster a strong relationship with Lydia so as to build a solid foundation upon which to work with a reputable scientist. Whenever I had a query about these rays, I was met with Lydia's boundless enthusiasm to educate me on whatever matter was at hand. I ensured to treat the knowledge she bestowed on me with a deep level of respect.

One of the biggest deciding factors that led me to try to make this film was the responses I received from my friends, family and colleagues when talking about Oceanic Manta Rays. When I spoke of these animals, everyone seemed to initially think I was talking about the common stingray. When I explained this was in fact a ray that could be up to seven metres wide and weighing up to two tonnes , I was met with astonished faces. "No way," "how is that possible?," "I didn't know we had them in New Zealand," they would say.

Naturally, I turned to the craft of filmmaking, wondering if the documentary form could help raise awareness about Oceanic Manta Rays in Aotearoa New Zealand's waters. It was brilliant timing as I was looking to pursue filmmaking as research for my Masters of Communication Degree at Auckland University of Technology. After a series of refinements to my initial questions, under the guidance of my two supervisors, we refined my research question to become; What are the complexities of filmmaking environments when making a nature documentary in Aotearoa New Zealand?

4.1 Pre-production

From the outset, I recognized the daunting challenges inherent in filming *Manta Watch - Discovering Aotearoa's Gentle Giants*. Never before had Oceanic Manta Rays been the primary focus of a documentary shot in New Zealand waters. Their critically endangered status and elusive behaviour posed significant obstacles. I would have to expose myself to many tangible filming environments at sea, which would push my boundaries as a practice led researcher and the boundaries of available technologies in order to capture these animals on film. In my mind I often mused over Palmer (2010), with regard to the lengths nature documentary filmmakers go to get a 'money shot.' From the outset I knew that I would rather fail in my pursuit of making a documentary about Oceanic Manta Rays than endanger myself or the manta rays in order to obtain footage. I describe this ethical, mental headspace in which I often found myself during the early stages of production, as an intangible filmmaking environment of vital importance. This intangible filmmaking environment clarified my values as a practice led researcher and in doing so, set the tone, mood and vibe for making this documentary. This headspace also helped me calm my woes about my commitment to authenticity. Throughout the entire production I had the constant concern of misrepresentation and/or anthropomorphising these animals, in what would be their first time leading a nature documentary. Knowing that I would put the safety and wellbeing of myself and the animals I was working with ahead of the execution of the film from the beginning, allowed me to feel a sense of confidence in how I would honour these animals throughout the entirety of the production.

One of my initial tasks during pre-production was compiling a list of questions based on my early interactions with Lydia at MWNZ. It was crucial to me that my growing knowledge of oceanic mantas didn't influence the questions posed to marine scientists during interviews. I wanted to ensure the audience received a solid, basic introduction to these creatures without any assumptions on my part hindering their understanding.

As I curated these questions, I also began exploring how they could shape the film's narrative structure. Storyboarding became instrumental in visualising these narrative ideas. From the many nature documentaries I watched in preparation for this shoot, I found it relatively easy to envisage the types of framing I would like for interviews. I was particularly drawn to the nature documentaries *My Octopus Teacher* (2020) and *Chasing Coral* (2017) for their very casual interview setups on what looked to be 35mm lenses with documentary leads Craig Foster and Richard Vevers respectively. I liked the two camera set up, allowing the editor to switch between the wide and close shots for maximum storytelling impact. I also liked that this framing allowed the directors to show the environment that surrounded the talent. I thought that given how much of the marine scientists'

lives are dedicated to the ocean environment, I hoped I would be able to find a way to somehow place them within the ocean space during their interviews. I envisioned interview setups that felt casual yet immersive, allowing viewers to connect with the environment surrounding the marine scientists. Thinking through the tangible filmmaking environments in which I and others would be moving, speaking and filming within was a very important part of the filmmaking process.

The challenge for me as a filmmaker were the gaps in the storyboard regarding live-action filming. These sections in the storyline lay blank as preparing for live action filming was a lot harder than I had initially considered, as I had no clue what to expect. My personal experiences of being at sea on a small vessel were limited to expeditions offshore of Taranaki. Furthermore my only immersion in deeper ocean waters had been in the protective area of a harbour. I decided to start compiling screen grabs from other documentaries' live action sequences for inspiration for when the time came for my own live action filming. This process ended up with me compiling one hundred and twenty 'live action' screen grabs from twelve ocean documentaries I'd found; *Mission Blue* (2014), *The Silent World* (1956), *Chasing Coral* (2017), *The Cove* (2009), *Puff Wonders of the Reef* (2021), *The Blue Planet* (2001), *Blue Planet II* (2017), *Watson* (2019), *My Octopus Teacher* (2020), *SeaSpiracy* (2021), *Playing with Sharks* (2021), *Blackfish* (2013), *Blue* (2017). While these films were all filmed in different locations, one could generally surmise that they are set in the tangible filmmaking environment of the ocean. Some screengrabs contained beautiful soft focus b-roll and others used inventive camera positioning on boats or aerial cinematography to show the scale of wildlife. Other screen grabs were chosen for their abilities to engage the audience with life below the surface in a more intimate way, via the use of underwater cinematography, spy cameras or hydrophones.

Having storyboarded, I felt confident in a rough idea for the visual look and feel of this documentary. However, from my prior experience filming offshore in the somewhat unpredictable ocean environments of Taranaki and Wellington, I knew that it would be naive of me to expect things to go according to any kind of stylistic or narrative plan. For example, issues with research equipment or a change in weather or ocean swell can affect filming plans dramatically. My prior experience filming in these conditions taught me the importance of flexible planning to adapt to unexpected challenges while maintaining safety and well-being, and to see the cinematic potential of these moments of adversity. Planning for encountering an array of potential filmmaking environments, both tangible and intangible, was a very important part of this documentary production. For example, when the crew and myself had to change our sail plans dramatically due to an incoming cyclone on day six of our ten day voyage, my prior planning for different types of weather dependent filmmaking environments proved immensely beneficial. I could quickly re-adjust to the situation, feeling confident to embrace

the tangible filmmaking environment of a cyclone and the intangible filmmaking environment of filmmaking in stressful, worry-filled and anxiety-driven surroundings.

Logistical pre-production planning influenced my storyboarding further. My prior experience as a content curator for marine organisations over the past eight years (*Project Reef, Love Rimurimu, International Seabed Authority, Sailing La Vagabonde*) taught me that careful logistical planning for any offshore documentary shoot is essential. When in the field, a seemingly calm and non-eventful moment can turn into a tangible wildlife filmmaking environment within seconds. Being technically and mentally prepared for a sudden change in events, which in the case of this documentary was the sighting of a manta ray, is critical. Compromises can become a necessity for the film-maker. There is a need to respect and plan for confined spaces aboard ocean vessels and continually evaluate and focus on interpersonal relationships and vessel protocols. As stated by Kerrigan et al. (2018), "collaborative cast and crew dynamics have a deep influence on the successful execution of the creative project" (p. 35).

Given the constraints of the vessel's capacity, I knew I would be required to experience many roles as a practice led researcher, including 'director,' 'cinematographer,' 'sound recordist,' and 'underwater diver.' I studied the layout of the sailboat in advance. Among other preparations, knowing where I could place gear in storage, position cameras, charge batteries, place microphones, position tripods and quickly waterproof cameras or changing lenses was an incredibly important thought process to undertake in advance of filming in the tangible filmmaking environment of the sailboat. Ultimately, this process allowed me as the practice led researcher to know I had tried my best to 'dissolve into the background' and prevent not only the oceanic manta rays, but the crew from feeling my constant presence onboard. I gave considerable thought in the pre-planning stages, that should the opportunity arise to engage in close quarters with the oceanic manta ray, either onboard the vessel or at sea, that my actions should be the most unobtrusive and respectful to the animal, such as use of slow movements and minimal auditory engagement.

4.2 Working with Scientists

An important filmmaking environment I knew I would be encountering early on was working with scientists. From the outset, I recognized the significance of working closely with Manta Watch New Zealand's (MWNZ) scientists. Establishing trust between myself as a practice led researcher and the scientists would be especially critical during the filming at sea. In such dynamic environments, where interactions with wild animals are unpredictable, trust among crew members is essential to address

unforeseen challenges effectively. Whether it's adapting to sudden changes in weather, unexpected animal encounters, or managing stress levels under the scrutiny of the documentary camera, the crew's cohesion and mutual reliance are vital. To foster this trust and build confidence in this intangible filmmaking environment, I relied on building strong relationships with members of the Manta Watch New Zealand team, particularly marine biologists Lydia Green, Lily Kozmian-Ledward, Dr. Mark Erdmann, and Dr. Edy Setyawan.

Lydia Green

Lydia Green, as the Project Founder and Manager of MWNZ, stood out as a knowledgeable and enthusiastic subject for interviews. Lydia is an experienced marine ecologist, who has extensive knowledge of Oceanic Manta Rays in New Zealand waters having studied them for many years. Upon meeting Lydia I could immediately identify that she would make a charismatic interview subject not only for her wholesome understanding of these animals but her captivating enthusiasm which matched her deep understanding of the subject material. As stated by Bricca (2017), “great documentary subjects have undeniable charisma and presence. They draw your attention. To use an old-fashioned term, they hold the screen” (p. 103). Connecting with Lydia early on in pre-production was invaluable as a practice led researcher, with her many years of experience working with both reef mantas abroad and Oceanic Manta Rays in New Zealand, her insights on oceanic manta ray behaviour and the captivating ways these huge and intelligent creatures move gave me invaluable knowledge. Lydia helped me prepare myself mentally, physically and technically for the underwater filming environments.

Pre-production discussions with Lydia meant I was able to prepare myself mentally for a creature with immense capacity for speed and agility - with the wing-like motion of their huge pectoral fins mantas able to propel them metres with every flap. Oceanic Manta Rays exhibit an "unsteady" swimming pattern, which is a significant locomotive characteristic observed in aquatic animals (Fish et al., 2018). This swimming behaviour is characterised by changes in speed, orientation, and direction, such as turning and acceleration (Fish et. al, 2018). I also, through these pre-production conversations, prepared myself to meet a creature with great intelligence (Green, 2024).
Pre-filming discussions with Lydia helped plan the physical aspects of filming that would be required, such as free-diving flippers to maximise opportunities for filming the agile movements of the mantas, and the need to have a weight belt to counter the buoyancy of my wetsuit.

Lily Kozmian-Ledward

I met the second scientist, Lily Kozmian-Ledward, who was the owner of sailboat *Amadis*, where I

would be filming the MWNZ team in action. Lily provided me with comprehensive insights into the boat, including storage areas for gear and safety procedures. Moreover, she offered valuable insights into the ecosystem inhabited by Oceanic Manta Rays. As a researcher, Lily's work focused on krill, which is a primary food source for Oceanic Manta Rays. This meeting prompted me to reflect on my storyboard and realise the significance of manta ray behaviour related to their foraging activities, particularly hunting krill. It became evident that accurately representing these animals on screen would require me to immerse myself in the entire marine ecosystem of the Hauraki Gulf.

Additionally, after discussing krill in detail with Lily, she highlighted the lack of research and understanding about these creatures' diet. This underscored the importance of including a segment on krill in the film, ideally through an interview with Lily.

Dr. Mark Erdmann

I had the pleasure of meeting Dr. Mark Erdmann of Conservation International who serves as the Vice President of their Asia Pacific Marine Programs. Lydia introduced me to Dr. Erdmann while showing me archival footage of him tagging a manta ray. Intrigued by his work, I expressed interest in speaking with the marine scientist responsible for such a challenging task. Upon meeting Dr. Erdmann at the Orewa Boat Ramp, I was struck by his natural charisma and passion for marine conservation. His extensive academic background and dedication to marine research and international involvement with rays made him an excellent choice for an interview subject and a potential focal point for the film.

At this stage, I was feeling confident in my choice of having three subjects to interview. However, Dr. Erdmann suggested I speak with Dr. Edy Setewayn, who managed the data side of manta tagging, a critical aspect of MWNZ’s research.

Dr. Edy Setewayn

Initially, I hesitated reaching out to Edy, as I was unsure how to make data-heavy information on satellite tagging engaging for film audiences. Nonetheless, out of respect for Dr. Erdmann's suggestion, I reached out to Dr. Setewayn for an interview. Dr. Setewayn was initially hesitant, so I proposed meeting for coffee to discuss the short documentary I was planning in an informal setting, away from the camera.

As we discussed the various challenges and unique experiences I would encounter while filming, Edy

began to share more about his work. Once again, I found myself deeply engaged in his research. His groundbreaking work revealed that mantas from New Zealand waters migrated to Fiji and Tonga. This revelation was crucial for the narrative of the film, as it shifted the perception of these oceanic mantas being solely found in New Zealand waters. Instead, it highlighted their global travels and seasonal visits to New Zealand. Throughout our conversation, I sensed Edy becoming more comfortable with the idea of sharing his work on camera. However, I was concerned that the interview might lack visual interest without effective b-roll footage, despite the significance of Edy's findings.

A few weeks later, I came across a short documentary titled "Manō" (2020), which used animation to illustrate the human impact on sharks over millions of years through the eyes of a Tiger Shark. This discovery made me realise that animation could effectively convey complex concepts and timescales in an engaging manner. I saw it as a perfect tool to succinctly present Edy's tracking data in a quick, compelling, and visually captivating way. This aspect is further explored in Chapter 4.5.2, *Animation*.

Scheduling the Film Shoot

One significant decision that was beyond my control was the timing of the oceanic manta survey, which would be determined by the Manta Watch team. However, I had a major decision within my control which was whether to conduct interviews with the scientists before or after the manta survey. Ultimately, I chose to conduct the interviews after the survey because I believed it would provide me with firsthand insight into the scientists' work, which could enhance the rapport I had with them during the interviews. However, there was a risk that this decision could backfire. Since I would be entering an unfamiliar filmmaking environment, I was concerned that my filming processes could potentially annoy the scientists, which might negatively impact our rapport during the interviews.

Despite these concerns, I made my decision based on the mutual trust I had developed with the marine scientists during the pre-production stages of the research. I felt confident in my ability to navigate the sailboat without causing disruption, I was satisfied with the gear I had selected for the task, and I believed I was prepared to encounter the oceanic mantas to the best of my ability given the information available to me.

4.3 Camera Choices

Choosing the right cameras was crucial for me as a practice led researcher during the production of this documentary. I understood early on that I would be filming in three main environments: land, air, and sea, each requiring a different camera setup. To streamline the editing process, I made sure

that each camera could film with consistent settings, minimising the need for extensive editing in post-production.

Land Filmmaking Environments

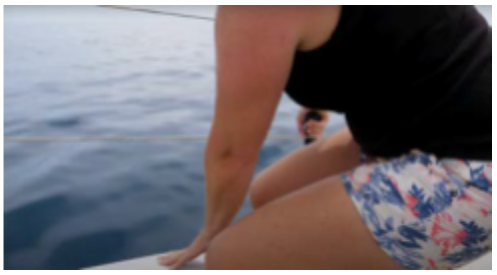
For land-based and onboard filming, where I could use high-quality cinema-style cameras to capture interviews and above-water action, I opted for the Panasonic Lumix GH5. Several factors influenced this choice. Firstly, filming on a sailboat in open waters meant dealing with constantly changing light conditions. The GH5's advanced features, such as a wide dynamic range and excellent low-light performance, were specifically tailored to handle these conditions. Additionally, its Micro Four Thirds sensor, combined with image stabilisation, allowed me to capture usable footage even in rough seas.

Figure 8, Filming onboard 'Amadis,' using the Panisonic Lumix GH5.

Water Filmmaking Environments

I opted to use the GoPro Hero 10 for the underwater filming environment. I have been using GoPro cameras for diving over many years due to their compact design which allows for easy manoeuvrability, which is helpful in challenging conditions. Similar to the GH5, it features built-in stabilisation technology that reduces shaking, making it ideal for capturing smooth footage, especially when quickly entering the water and swimming to keep pace with Oceanic Manta Rays. Moreover, the camera boasts excellent low-light capabilities, which could prove useful if water clarity was poor.

The GoPro also offers versatility in its mounting options, such as tripod and selfie stick attachments. I found this adaptability particularly valuable during the filming of a nature documentary, as animals can appear and disappear quickly. Since it takes several minutes to prepare and enter the water, it was crucial to have a way to quickly deploy a camera if Oceanic Manta Rays suddenly appeared near the boat. Given the height of the sailboat above the water, we needed a longer pole than GoPro typically offers with their handheld sticks. After modifying a common mop handle and attaching the GoPro, Lily, the skipper of the boat, devised the perfect solution. With this setup, we were able to capture remarkable footage of two Oceanic Manta Rays investigating the rudder of the sailboat and the dinghy trailing behind it.



Figures 9 & 10, Skipper Lily Kozmian-Ledward deploying the ‘pole-cam’ overboard.

Figure 11, The resulting ‘Pole-Cam’ footage of two Oceanic Manta Rays observing the rudder of the boat.

The decision to use the GoPro Hero 10 aligns with recommendations from experienced filmmakers in the marine space. Patrick Dykstra, a cameraman for BBC's Blue Planet II series, suggests GoPro cameras for underwater filming, especially for those with limited budgets. Furthermore, professional filmmakers have utilised GoPro cameras for their relatively low cost and versatility. The BBC, for instance, attached GoPros to a sinking whale in their nature documentary *Blue Planet II*. Additionally, in the documentary *Leviathan*, filmmakers faced turbulent shooting conditions and turned to GoPros due to their adaptability and ease of use in challenging environments.

Air Filmmaking Environments

Early on, I made the decision to forego filming from the air. I realised that operating a drone while at sea would be beyond my skill level. Additionally, obtaining permits to film oceanic mantas would be necessary, because they are often found feeding on krill, which attracts marine mammals like whales. If whales were present alongside the mantas, I would need a marine mammal permit to film. Since I would already be focused on capturing the scientists in action with the GH5 and would have GoPros ready to dive into the water at a moment's notice, I felt that operating a drone was too much to handle.

While I made the decision to forego bringing a drone onboard for filming, it wasn't until I was onboard that I learned drone work was a significant component of their scientific research. Witnessing the drone being utilised not for cinematic purposes but rather for calculating the size of the manta was both an exciting moment, and one where I realised the importance of capturing the energy and collaboration needed from all crew, in order to swiftly deploy the drone so that critically important data such as underbelly markings and sizings of the mantas were obtained. I recognised that in order to share the importance of this scientific method with the film audience, obtaining the drone footage would be critically important. The importance I had placed throughout the filmmaking process on developing a trustful and respectful relationship with the researchers, meant that I was able to obtain access to the drone footage for inclusion in the documentary.

4.3 Narrative Structure

When it came to shaping the narrative structure of this documentary, I remained flexible and open-minded throughout production. I wanted to stay receptive to possibilities as we embarked on the voyage. My approach was to capture as much of the action as possible during our time onboard and adjust the narrative arc based on our observations. While storyboarding, I wasn't entirely certain about the specifics of the live-action filming segments. There was a chance we might not encounter any manta rays during the entire season due to their elusive nature, although given the MWNZ team's reliance on citizen sightings, this seemed unlikely.

Despite my commitment to flexibility, I was mindful of certain narrative documentary fundamentals. As Brixxa (2017) noted, "whether an audience consciously recognizes it or not, they expect to see three things: characters, conflict and progression" (p. 103). Therefore, I aimed to capture elements of

characters, conflict, and progression in the footage, providing a broad range of material for editing and emphasising these aspects in the final documentary.

4.3.1 - Influences on Narrative Structure

The moments of observing oceanic mantas during the voyage significantly influenced the original storyboarding of this documentary. It was a relief to have the central "characters" of the film accounted for in such a remarkable way. We were able to locate and observe three mantas, one of which was swimming in ocean currents, while the other two were engaged in courtship behaviour. Courtship had only been observed once before in New Zealand waters by New Zealand's '*Young Ocean Explorers*' television show, and never before from the air using a drone. The intense excitement onboard was palpable, fueled by the rarity of what we were witnessing. I realised that these moments would become significant and highly emotive focal points in the documentary.

Additionally, observing the tagging process of the solitary manta swimming in the ocean current was another powerful moment. The dedication, physical exertion, and meticulous logistical planning required for this scientific endeavour were clearly evident. It became apparent to me that this groundbreaking research would serve as a pivotal moment in the storyline, enhancing the original narrative I had storyboarded.

Furthermore, life onboard the vessel presented unexpected experiences for me. While the scientists were deeply focused on their research tasks, the downtime moments held their own significance. Living in the confines of the cabin allowed me to witness early mornings spent logging data, afternoon swims taken in the vast expanse of the ocean for relaxation, and the simple act of brewing cups of coffee to keep the crew alert during their long days of surveying. I came to realise that despite being a nature documentary, there was a profoundly human aspect to the filmmaking environment in which I found myself immersed. It was a collaborative atmosphere, and I understood that capturing these intimate moments would also shape the structure of the documentary. These instances would add another layer of emotion, forging connections not only with the Oceanic Manta Rays but also with those dedicated to their conservation efforts.

As a severe tropical cyclone approached on the seventh day of our ten-day survey, I was grateful for my readiness for the unexpected. We made the decision to anchor near Great Barrier Island and wait for the storm to pass. While our crew waited in the bay, Lydia and I engaged in constant conversation about the oceanic manta rays. It struck me that this was an ideal opportunity to conduct her

interview. Lydia appeared more relaxed than at any other point during the trip, delighted by our encounters with three manta rays. What was initially planned as a thirty-minute session extended into two hours with a brief fifteen-minute break. Upon concluding the interview, I realised that Lydia's insights had once again shifted the direction of the documentary's narrative. She provided extensive commentary on our observations and shared a wealth of knowledge about mantas.

Figure 12, Behind the scenes of my interview with Lydia Green on the bow of 'Amadis.'

The severity of the tropical cyclone forced the entire crew to abandon the boat and seek refuge on Great Barrier Island until the storm passed. While this situation was far from ideal, it presented me with a valuable chance to visit Lydia's workspace on land and review some of the data she gathers. Once again, delving into MWNZ's archives significantly impacted the storyline. I realised that alongside the extensive footage I had captured onboard, there was a wealth of archival material available that could complement the factual information about Oceanic Manta Rays discussed during Lydia's interview.

Upon returning from Great Barrier Island, I interviewed Mark, Lily, and Edy. Once again, the extensive archive at MWNZ proved incredibly useful for filling in any gaps that I may have missed while onboard. For instance, although we encountered numerous dense krill patches during our survey, I had been unable to capture any footage of manta feeding. Lydia's archive contained clips of manta rays feeding, which, when combined with Lily's interview, created a remarkable nature documentary sequence.

In Chapter 2.7, I discussed how I found inspiration in the film *The Cove* (2010) for its narrative structure. The diverse range of materials used by the director and editor effectively enhanced and

educated viewers about the plight of dolphins, intensifying the emotional impact of the story. From the beginning, I envisioned portraying the challenges faced by Oceanic Manta Rays on screen in a similar manner. Like the filmmakers of *The Cove*, I had the opportunity to blend the footage I captured onboard with interviews, extensive archive material, and innovative technical solutions such as 'pole-cam' footage to reveal layers of suspense in my storytelling.

Once back on land, I focused on developing a narrative structure further. With the onboard filming and interviews completed, I turned to the widely used three-act structure, which is prevalent across various storytelling mediums, including filmmaking. This structure is frequently employed in nature documentaries to craft compelling narratives about the natural world. The three acts typically entail an introduction to a 'character' or 'issue,' followed by a 'challenge,' and ultimately, a 'resolution.'

4.3.2 Defining the Narrative Structure

Manta Watch begins by setting the scene in New Zealand's Hauraki Gulf before delving into the history of the central issue: the plight of the elusive and critically endangered Oceanic Manta Rays. As the documentary unfolds, it presents various issues to the audience, including:

- The elusive nature of Oceanic Manta Rays
- Oceanic Manta Rays are critically endangered status
- The threat to Oceanic Manta Rays from overfishing
- The lack of population data on New Zealand’s Oceanic Manta Rays

Despite the multitude of challenges, a central issue gradually emerges throughout the documentary. The ongoing challenge revolves around the elusive nature of these animals and their small population size. The research team heavily relies on community sightings of manta rays to refine their research efforts and advocate for better protections for the species, both locally and internationally. Thus, the importance of citizen science and the work of MWNZ becomes a central challenge addressed in the film.

Another crucial element of the film's narrative structure is the presence of turning points. A turning point signifies a significant change in the story, either involving a character or addressing an issue, which serves to emotionally engage the audience (De Jong, 2011). In nature documentary

filmmaking, turning points are particularly important because they create moments of emotional intensity between species, especially when the animals themselves lack a clear voice on screen.

While the most prominent turning point in the film occurs at 21:17 with the sighting of two courting manta rays, there are several other pivotal moments throughout the documentary that contribute to maintaining an engaging pace. These include:

- Recording a citizen sighting at sea (5:29)
- Successfully tagging a manta ray (7:35)
- The disruption caused by a cyclone onboard (13:25)
- The revelation of pregnant manta rays in New Zealand (15:09)
- An unsuccessful mission to spot manta rays in the motorboat (18:50)

These turning points allow the film to transition smoothly between tones, shifting from hopefulness to excitement, worry, admiration, disappointment, and ultimately awe and amazement. By strategically incorporating these moments, I aimed to achieve the desired emotional impact and narrative depth in the film.

4.4 Interviews

Interviews are a highlight of the filmmaking process for me. Drawing from my background in the Dramatic Arts, I found inspiration in the work of Dorothy Heathcote (1995), a renowned drama educator known for her eight modes that aid in structuring dramatic interviews. For this film, I chose to employ a combination of Question and Answer mode and Multi-Voice Mode.

Question and Answer mode was a natural choice, facilitating a dialogue where one person asks questions and the other responds. On the other hand, Multi-Voice Mode allows participants to take turns expressing their experiences, thoughts, and emotions, fostering a more conversational

atmosphere (Heathcote & Bolton, 1995). While Question and Answer Mode is valuable for extracting factual information from marine biologists, Multi-Voice Mode provides interview subjects with the opportunity to delve deeper into questions.

In this documentary, marine biologists share their expertise and personal experiences working with Oceanic Manta Rays in the waters of New Zealand. The leading authorities in the documentary are Dr. Mark Erdmann and Dr. Eddy Setewyan, renowned experts on Oceanic Manta Rays, who possess both extensive knowledge and the ability for profound reflection (De Jong, 2011).

To ensure thorough coverage of the topic, I prepared a set of tailored questions for each of my four interviews, matching the expertise of each participant or authority. Following the guideline proposed by Walsh (2024), who states “most people do not have the energy for an interview that is longer than an hour, nor will give you more than that of their time” (p. 23), I aimed to create a concise list of ten questions for each hour-long interview.

4.5 Post Production

Post-production is the phase that begins once filming or recording has wrapped. It’s a dynamic process where essential tasks like editing, sound design, and special effects are completed. I believe this phase is unique for every filmmaker, as each film demands a different balance of post-production work.

For this film, post-production lasted around fourteen weeks. Initially, I considered focusing on post-production within the context of nature documentary filmmaking environments. However, I ultimately decided against that approach. While post-production is certainly a key element of documentary filmmaking, it applies to all types of films, not just nature documentaries, which are the focus of this research.

That said, certain tools in the post-production process can have a more significant impact when it comes to wildlife films, especially given the ethical considerations involved. For instance, the use of a cinematic score can subtly or overtly influence the audience’s emotional response to an animal’s natural behaviour on screen. Similarly, the pacing of edits can either stretch or compress the reality of what was observed.

As a practice-led researcher, staying true to the real-life wildlife experiences I had in the field became my top priority during post-production. My daily journaling played a crucial role in helping me reflect on these experiences and guided me in using post-production tools responsibly to tell the animals'

stories with integrity. The following chapters discuss some of the insights revealed to me during this evolving process.

4.5.1 Editing

Bricca (2017) states that ‘documentary editing is perhaps one of the most challenging intellectual feats on the planet’ (p. 7). In preparation for this challenging task, I watched numerous nature documentaries, each showcasing wildlife in diverse ways through editing techniques. Some heavily relied on interviews to engage the audience, while others utilised voice-over narration. Additionally, some documentaries featured extensive archive footage, while others focused on high-definition present-day footage of wildlife in action.

Through this exploration, I realised that I had amassed a range of materials from various filmmaking environments, including archive footage, my own collected footage, and interviews. This abundance of resources opened up several possible avenues for crafting the final storyline of my film.

Reviewing the footage.

In the end, I opted to thoroughly review all the footage in my possession and organise it based on the different days of the voyage. As suggested by Bricca (2017), when assessing footage one must ‘look a little deeper at the relative value and potential function of the different types of footage that might be available to us’ (p. 93). Following this advice, I listened to each interview I had conducted, creating a colour-coded timeline to pinpoint moments of significance captured on film. This approach facilitated the identification of valuable segments for constructing my storyline.

For instance, I assigned pink markers to denote crucial facts about manta rays, blue markers for instances where scientists displayed emotion, such as smiling or becoming emotional while speaking, and yellow markers for unusable footage due to technical issues like microphone disturbances or unfavourable lighting conditions. By placing these markers on the timeline, I could readily spot "golden moments" where multiple markers aligned. This allowed me to easily recognize instances where lighting was favourable, emotional content was present, and compelling facts were being discussed.

Assembling a rough cut.

I developed a storyboard that underwent constant revision and refinement throughout production. This provided me with a foundational framework that I could utilise as a rough guide in creating the film. After approximately three weeks, I had crafted a series of sequences and organised them to align

with the narrative structures I had previously determined. This marked the beginning of a more critical phase in which I refined the rough cut to make the film more watchable. To start this process, I replaced rough clips with the best ones available—those that were sharply focused, stable, and beautifully framed. A key consideration in clip selection was how each clip complemented the others within its respective sequence of action. Bricca (2017) warns that “the enormity of the task can easily overwhelm you” (p. 93). Indeed, this phase of refining the cut proved to be quite difficult, and I made a conscious effort not to exceed eight hours of editing per day. I also prioritised maintaining good posture and took regular breaks to avoid prolonged screen exposure.

After having achieved a rough cut I was happy with, I turned to enhancing the storyline with archive imagery. As noted by Jong (2011), “archive film is mainly regarded by documentary makers as an illustrative material, to be employed for narrative, structural and aesthetic purposes” (p. 257). In this film, a variety of archival resources including photos, drone footage, and citizen science images and videos of manta rays were utilised. These archives not only enhanced scenes but also enabled the exploration of deeper historical narratives, both regarding scientists and the manta they studied. This allowed for a more compelling narrative to unfold on screen.

The Opening Scene

Crafting a compelling opening sequence is paramount in the success of a film. Drawing from my experience as a film producer for the YouTube channel '*Sailing La Vagabonde*', where I closely examine the analytics of episodes, I understand the significance of the first two minutes in retaining audience engagement. Similar to the opening of a book, the introduction of a film must captivate the audience, preventing them from drifting away.

To ensure the effectiveness of the opening sequence, I identified five key elements that I deemed vital:

1. The critically endangered status of Oceanic Manta Rays.
2. The immense size of Oceanic Manta Rays.
3. The presence of Oceanic Manta Rays in New Zealand.
4. The specific setting of the story in the Hauraki Gulf of New Zealand.

5. The commendable efforts of Manta Watch New Zealand in advocating for Oceanic Manta Rays.

Through experimentation, I explored different ways to incorporate these elements into the introduction. It was only when I discovered a fitting musical track that I successfully crafted an introduction that effectively conveyed all five key elements to the audience within the first few minutes of the film, employing both direct and indirect storytelling techniques.

Bricca (2017) reminds us of the power of visual storytelling in film. Keeping this in mind, I recognized the potential impact of a specific clip featuring a male freediver with outstretched arms in front of a manta ray. After careful consideration, I determined that strategically placing this clip at the moment the opening title appears on screen could enhance the overall impact of the film. It would subtly convey the human-manta connection whilst instilling an early sense of humble appreciation for the manta's sentient nature, agility, and colossal size.

4.5.2 Animation

While I was in the editing suite, repeatedly reviewing the interview with Edy Setyawan, the idea of incorporating animation into the documentary crossed my mind. Combining animation with documentary filmmaking is an unusual concept since they are typically considered as distinct mediums (Honess Roe, 2013). Until that moment, I had hesitated to use animation in documentaries, fearing it might undermine their claim to representing reality. Animation often diverges from our perception of reality, leading viewers to perceive it as inherently unreal when integrated into documentaries (Ehrlich, 2021). However, Honess Roe (2013) argues that animation "expands the boundaries of what and how we can depict reality by offering new or alternative perspectives" (p. 2). I found this perspective compelling, especially as I had been grappling with my editing process for several days due to three primary reasons;

> **1). How can I visually depict the migration of manta rays from New Zealand to Tonga or Fiji (the two locations which tracked manta rays have recently been shown to swim between)?** It's essential to showcase their extensive migration route in the film to emphasise to the audience, as well as the scientific community, the need for conservation efforts not only in New Zealand waters but also in international waters and those of other nations.

2). How can I effectively illustrate the complex process of a manta ray's tagging system transmitting data to a satellite in a way that is both informative and engaging? The interview itself is dense with technical information, making it challenging to present in its entirety.

3). Is there a way to enhance Edy's interview to ensure clarity and conciseness, considering English is not his first language? While I initially edited responses extensively to match the pacing and tone of other interviews, the resulting abrupt cuts had become distracting on screen. I'm concerned that the edits might jeopardise the trust placed in me during the interview process.

Honess Roe's statement prompted me to reconsider animation as a means to visualise the abstract ideas I wanted to convey and provide greater fluidity to the interview. Instead of viewing animation as inherently unrealistic, I began to see it as an alternative perspective on reality. Moreover, animation presented an opportunity to immerse audiences in the manta ray migration route and satellite tagging process, which would be nearly impossible to achieve in reality.

I conducted research to find a suitable animator for this project, considering my lack of expertise in the field. Eventually, I chose Sam Debey, with whom I had collaborated on various projects before, which were all set in the marine realm. While listening to Edy's audio explaining the migration and satellite tagging process, I sketched out scene suggestions for Sam, drawing inspiration from an animated documentary called *Manō*.

One aspect of *Manō* that particularly impressed me was the portrayal of distinct ocean environments specific to Hawaiian waters. In designing the animations for our documentary, I made sure to responsibly represent and in doing so, distinguish the environments Oceanic Manta Rays are found in. For the scenes in New Zealand and Fijian I made sure to incorporate animals only found in these countries' waters (endemic). . Additionally, I admired the colour palette used in each scene of "Manō," as it effectively conveyed emotion within the storyline. I worked closely with Sam to ensure that the scenes we created were equally vibrant and emotive, aiming to evoke strong reactions from viewers.

Once the animation was finalised, I presented the finished product to the MWNZ marine scientists for their feedback. They suggested some adjustments to the shape of the tagging device and its buoyancy in the water, which we incorporated into the final version.

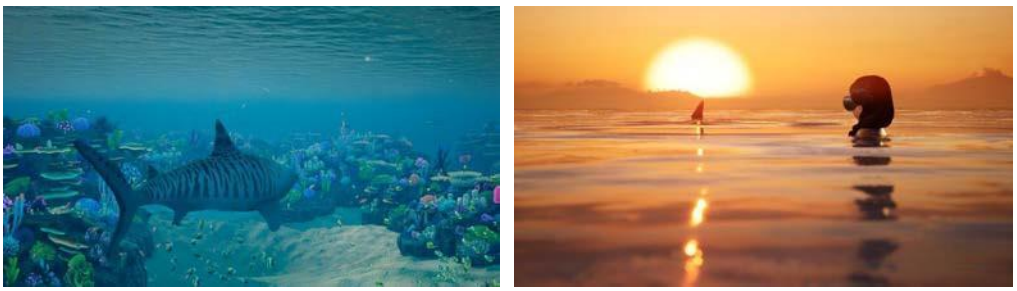


Figure 13, Manō (2021) Examples of the distinct underwater scenes and colours used within the animated documentary.

When I integrated the animation into Edy's interview, I was impressed with the result. By incorporating animation into a nature documentary, I successfully addressed all the initial challenges I had faced with this segment of the film. I came to realise that animation possesses the remarkable ability to bridge spatial distances, which is particularly advantageous in the context of nature documentaries.

Whilst Bill Nichols differentiates between documentary and fiction by asserting that documentary shows the reality we inhabit and not the filmmaker's fantasy (Nichols, 2010), Ehrlich (2021) states that “animated documentary contributes to epistemological explorations of the documentary genre and non-fiction representations by questioning and casting new light on the capacity of the moving image to act as a record of the world” (p. 55). In this case, I was able to not only bring audiences closer to the action and subject material of this documentary segment, but show past and future events that alluded to the live action footage I was able to capture.

4.5.3 Scoring the Film and Voice Over

Scoring the film

Scoring the film was one of the most enjoyable aspects of the filmmaking process for me. As Bricca (2017) aptly points out, "figuring out the musical logic of a documentary is a fundamental aspect of any edit" (p. 141). The power of music to enhance the narrative and evoke strong reactions and emotions from viewers cannot be overstated. I spent extensive hours on the music website Epidemic Sound, carefully curating playlists with songs that I felt could complement specific parts of the nature documentary. I really enjoyed the process of downloading tracks and experimenting with the impact they had on the edited sequences. On average, I tested about eight tracks before discovering the perfect fit for each sequence. Furthermore, I adjusted the length of clips to match or change based on the rhythm or beat of the music. This style of editing really heightened the emotional impact of the

sequences.

Composers have long found the sea to be a fertile ground for creativity, leading to numerous concert works influenced by maritime themes (Cooke, 2014). When composers are tasked with scoring underwater imagery Cooke (2014) states they “often attempt to create unfamiliar sounds that may plausibly have originated in water” (p. 109). In the realm of documentary filmmaking, particularly when it involves animals and environments, there exists an expectation among audiences for authenticity and truthfulness in what is presented (Wright, 2022). While BBC guidelines emphasise the importance of never deceiving or misleading viewers, the use of Foley methods in wildlife and nature documentaries is commonplace for both practical and aesthetic reasons (Wright, 2022).

Building upon this insight, a standout moment for me was the seamless integration of music, sound effects, and the fluid movement of the manta ray during feeding. Having captured numerous angles of the same action while filming, I had ample footage at my disposal to smoothly cut between different perspectives. For example, in the scene where Lily discusses feeding behaviour I intercut live action footage, drone shots and archival material which resulted in cinematic sequences. Enhanced by a vibrant score and the sounds of water breaking at the surface, the outcome was a compelling portrayal that immersed the audience in the mesmerising world of mantas feeding in the waters of New Zealand.

Voice over

Voiceover narration is a powerful tool when editing nature documentaries for several reasons. It aids in clarifying information for the audience, deepens emotional involvement in the story, and helps cultivate viewers' connection to and admiration for the natural world. In the case of this documentary, the primary purpose of using narration was to offer audiences vital insights into Oceanic Manta Rays and the marine scientists researching them. Furthermore, the narration provided essential details about where the research was being conducted and the legislative measures impacting this critically endangered species.

Another reason for harnessing the use of voice over narration in the film was to help tighten the narrative structure of the documentary. I found that adjusting the voice overs numerous times for clarity while editing, allowed the tone and pace of the film to change dramatically. By refining the voice overs, the most relevant information was emphasised and a more impactful and engaging narrative was established.

The educational aspect of voiceover narration was a significant focus during the filmmaking process, requiring considerable attention. I dedicated numerous hours to refining how the voiceover conveyed the behaviour of Oceanic Manta Rays and the work of marine scientists. It was important to me that the educational content honoured the scientific research without becoming overly dry or uninteresting. Throughout the editing phase, I conducted multiple screenings with Lydia Green to experiment with various approaches to presenting the scientific information. In agreement with Bousé's (1998) notion, I ensure that any voice over required for this documentary is vetted by marine scientists that understand manta ray behaviour, so as to represent the behaviour of these animals as accurately as possible. Ultimately, we crafted a script that effectively educated viewers about the complex challenges facing Oceanic Manta Rays in a way that was emotionally impactful and engaging.

Chapter Five

Conclusion

Creating this documentary provided me with a rewarding opportunity to capture my journey as a practice led filmmaker. Through the medium of filmmaking, I aimed to explore both tangible and intangible filmmaking environments, and portray the story of a critically endangered animal—the Oceanic Manta Rays—in the waters of New Zealand. Additionally, I sought to shed light on the efforts of individuals striving to raise public awareness about these remarkable creatures and in doing so, foster a greater sense of understanding and connection to these elusive animals within audiences.

This will be my second documentary ever made and thus, a primary objective was to craft a compelling nature documentary. The aim was to explore the filmmaking environments necessary for effectively portraying the story of Oceanic Manta Rays, and the techniques and strategies I would have to employ in order to do so. Guided by the concept of filmmaking as research, the process involved thorough exploration and reflection.

I encountered many tangible and intangible filmmaking environments throughout the course of this research. From intangible filmmaking environments such as fostering 'filmmaker scientist' relationships or abiding to ethical guidelines when interacting with wildlife, to tangible filmmaking environments such as camera movements in confined spaces, I discovered plentiful filmmaking environments. What this research taught me was why, how and when to engage in these unique filmmaking environments in respectful and ethically considered ways.

Employing filmmaking as research proved invaluable, both in refining the documentary to its final form and in enhancing my own skills as a practice led researcher. It provided a framework for continuously improving approaches, ideas, and techniques specific to nature documentary filmmaking practice. Throughout this journey, the support and guidance of my supervisors were instrumental as I navigated this methodology for the first time.

The process of conducting this research significantly bolstered and honed my technical skills as a practice led researcher. director, producer, and editor. Looking ahead, I see immense potential for expanding this project into a feature-length narrative. In future endeavours, I advocate for delving

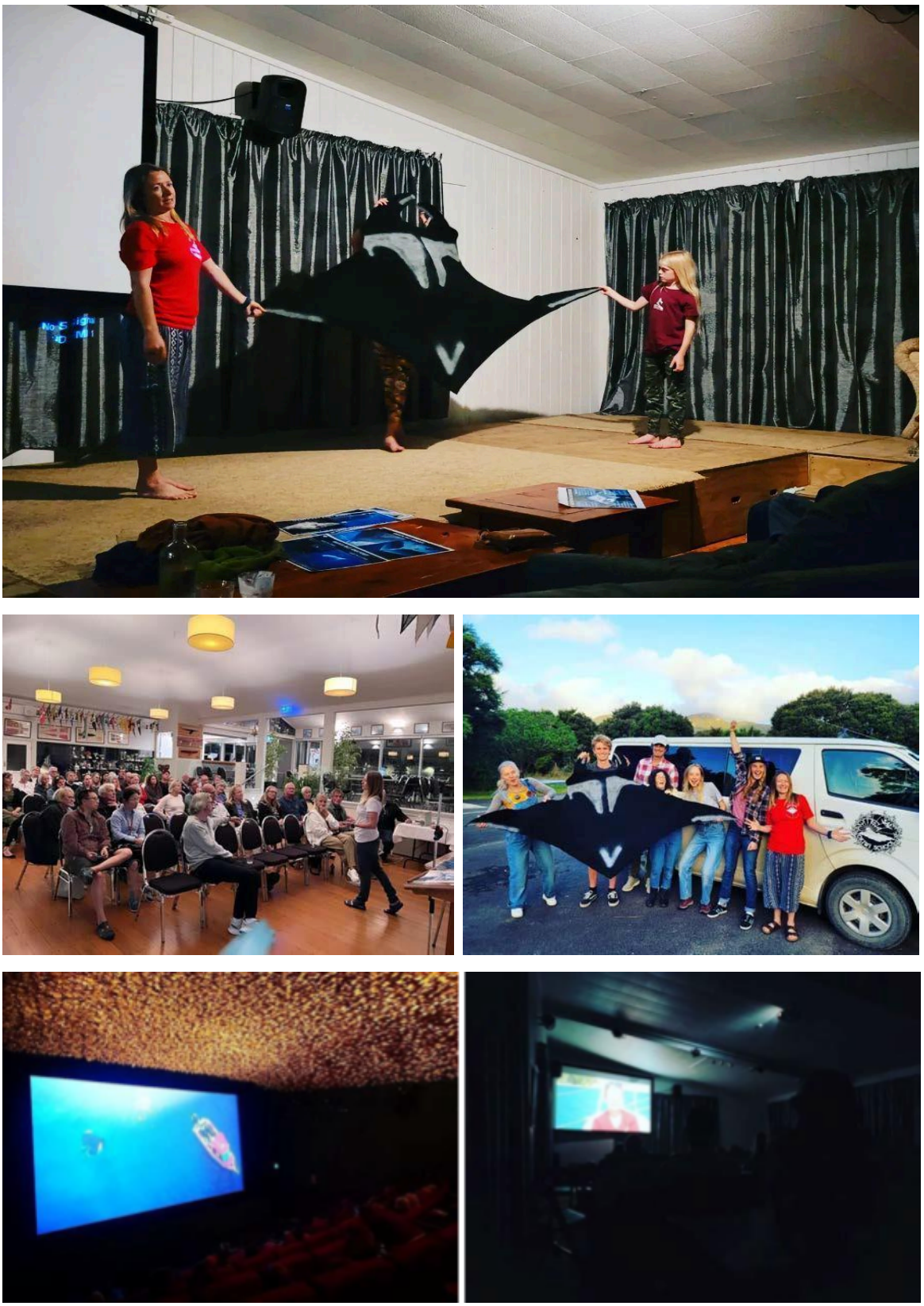
deeper into the cultural narratives surrounding Oceanic Manta Rays, a dimension that this documentary, rooted primarily in Western knowledge and science, did not explore. Incorporating Indigenous perspectives, such as those of Māori or Pasifika communities, would have required building genuine partnerships and potentially adopting a community-centred approach that prioritises Indigenous voices. As I wanted to direct the narrative independently and lacked appropriate time and cultural knowledge to engage authentically, I didn't feel I could do this responsibly. I believe it's essential to see oneself as a guest in these communities, requiring humility, patience, and an openness to be guided by those who hold the cultural knowledge.

In saying this, having showcased my technical filmmaking aptitude with regard to these animals, it is my hope that this short documentary may foster the possibility of a new feature length film about these majestic creatures in the future, which would weave different perspectives within the overall narrative. A feature film that from the outset, would include a far wider array of knowledge holders than just those researching oceanic manta rays in the western science context. I am excited to already be taking steps on a genuine journey of understanding these rays from indigenous knowledge keepers both in Aotearoa and Hawaii, without the pressure of film production deadlines. There is so much to learn and the learnings thus far have been both powerful and awe-inspiring.

Furthermore, the allure and intrigue of Oceanic Manta Rays have left an indelible mark on my imagination and curiosity. I hope that my contribution has played a role in furthering community understanding and appreciation for these majestic creatures. It brings me great joy to see that the story of these animals has transcended its original purpose. Notably, in 2023, "Manta Watch" was screened at the Maui Film Festival in Hawaii, USA, marking a significant achievement. Additionally, it received screenings at the World Whale Film Festival (USA), Harbor Film Festival (USA), and Ocean Films Húsavík (Iceland).

Figure 14, Maui Film Festival, Hawaii

Additionally, this documentary has been showcased nationwide at various cinemas, accompanied by Q&A sessions hosted by Manta Watch NZ. These screenings have brought in audiences of all ages and has sparked inspiration and engagement about Oceanic Manta Rays within communities across the country. In 2024, the documentary embarked on a national tour, reaching students from primary through to secondary school age, educating them about these critically endangered rays. Upon conclusion of this research, I believe that it is only through raising awareness and fostering understanding that we can make positive change toward better protections for these sentient beings.



Figures 15, 16, 17, 18 & 19, A selection of photos from '*Manta Watch - Discovering Aotearoa's Gentle Giants*' National Film Tour 2023/2024.

References

Aitken, S. (Director). (2021). Playing with Sharks [Film]. Wildbear Entertainment.

Allen, G. (2014, January 15). Months after “Blackfish” release, controversy over SeaWorld grows. National Public Radio. Retrieved from http://www.npr.org/2014/01/15/262767226/months-after-blackfish-release-controversy-for-sea world-grows

Arthus-Bertrand, Y., & Pitiot, M. (Directors). (2012). Planet Ocean [Film]. Hope Production.

Barbas, T. A., Paraskevopoulos, S., & Stamou, A. G. (2009). The effect of nature documentaries on students’ environmental sensitivity: a case study. *Learning, Media and Technology*, *34*(1), 61–69. https://doi.org/10.1080/17439880902759943

Baron, J. (2021). Review: Kill the Documentary: A Letter to Filmmakers, Students, and Scholars, by Jill Godmilow. *Film Quarterly*, 76(3), 104–107. https://doi.org/10.1525/fq.2023.76.3.104

Barnouw, E. (1993). *Documentary: a history of the non-fiction film*. 2nd rev. ed. New York, Oxford University Press.

Barry, C.A., Britten, N., Barber, N., Bradley, C., & Stevenson, F. (1999). Using reflexivity to optimize teamwork in qualitative research. *Qualitative health research, 9*(1), 23–44. https://doi.org/10.1177/104973299129121677

Batty, C., & Kerrigan, S. (2018). *Screen production research: Creative practice as a mode of enquiry*. Palgrave Macmillan.

Biggs, B. (Director). (2020). Manō [Film].

Bousé, D. (1998). Are wildlife films really “nature documentaries”? *Critical Studies in Mass Communication*, *15*(2), 116–140. https://doi.org/10.1080/15295039809367038

Bousé, D. (2000). *Wildlife films*. University of Pennsylvania Press.

Boissat, L., Thomas-Walters, L., & Veríssimo, D. (2021). Nature documentaries as catalysts for change: Mapping out the 'Blackfish Effect'. *People and Nature, 3*(6), 1179–1192. https://doi.org/10.1002/pan3.10221

Bricca, J. (2017). *Documentary Editing: Principles & Practice.* 1st ed. Routledge. https://doi.org/10.4324/9781315560472

Brylla, C., & Kramer, M. (2018). *Cognitive Theory and Documentary Film*. Palgrave MacMillan.

Bruzzi, S. (2006). *New Documentary.* 2nd ed. Routledge.

Calarco, M. R. (2020). *Animal Studies: The Key Concepts*. Routledge. https://doi.org/10.4324/9780429019326

Chilcott, L. (Director). (2019). Watson [Film]. Animal Planet Documentary Films.

Collard, R. C. (2016). Electric elephants and wildlife documentary film. *Area*, 48. 472–479. https://doi.org/10.1111/area.12133

Cooke, M. (2014). *Water Music: Scoring the silent world.* Routledge.

Cousteau, J.-Y., & Malle, L. (Directors). (1956). The Silent World [Film]. Rizzoli

Film. Cowperthwaite, G. (Director). (2013). Blackfish [Film]. Magnolia Pictures.

Cronin, M. (2015). Six Years Later: Did 'The Cove' Impact Dolphin Hunting in Japan? Vice. Retrieved February 27, 2024, from https://www.vice.com/en/article/5397db/six-years-later-did-the-cove-impact-dolphin-hunting-in-japan

Dunn, M. E., Mills, M., & Veríssimo, D. (2020). Evaluating the impact of the documentary series *Blue Planet II* on viewers' plastic consumption behaviours. *Conservation Science and Practice, 2*(10). https://doi.org/10.1111/csp2.280

de Jong, W., Knudsen, E., & Rothwell, J. (2011). *Creative documentary: Theory and practice.* Routledge.

Delmotte, I. (2017). Losing Sight of Atmospheric Sounds in Televised Nature Documentary The New Soundtrack 7.1, 67–82. DOI: 10.3366/sound.2017.0097

Dudzinski, K.M., Frohoff, T., Norton, J.S., & Anderson, J. (2008). Dolphin Mysteries: Unlocking the Secrets of Communication. Yale University Press.

Ehrlich, N. (2021). *Animating Truth*. Edinburgh University Press.

Ehrlich, P., & Reed, J. (Directors). (2020). My Octopus Teacher [Film]. Netflix.

Elliot, N. L., (2001). Signs of Anthropomorphism: The Case of Natural History Television Documentaries, *Social Semiotics*, *11*(3), 289–305. https://doi.org/10.1080/10350330120032511

Evans, G. (2005). *John Grierson: Trailblazer of documentary film.* XYZ Publishing. Evernden, N. (1992). *The Social Creation of Nature*. Johns Hopkins University Press.
Fothergill, A. *(Director). (2001). The Blue Planet [Television series]. BBC Natural History Unit.*

Fish, F. E., Kolpas, A., Crossett, A., Dudas, M. A., Moored, K. W., & Bart-Smith, H. (2018). Kinematics of swimming of the manta ray: three-dimensional analysis of open water manoeuvrability. *Journal of Experimental Biology, 221*(6), 1–10. http://dx.doi.org/10.1242/jeb.166041

Gordon, L., & Vierus, T. (2022). First photographic evidence of oceanic manta rays (*Mobula birostris*) at two locations in the Fiji islands. *PeerJ, 10*(10), DOI: 10.7717/peerj.13883

Green, L. (2024). Why are Aotearoa's te whai rahi oceanic manta rays in big trouble? *Aotea Great Barrier Environmental Trust: Environmental News, 49*, 12–18. Retrieved March 12, 2024, from https://static1.squarespace.com/static/5339e6f9e4b061857996f939/t/65e19229e03b850b295e5858/1709281888913/Environmental+News+Issue+49.pdf

Grierson, J. (1947). *Grierson on Documentary.* Harcourt, Brace & Co.

Hain, M. (2019). Hollywood Film as Therapy: Hugo Haas, Trauma, and Survivor Guilt. *Jewish Film & New Media*, *7*(1), 1–22. https://doi.org/10.13110/jewifilmnewmedi.7.1.0001

Haraway, D. (1991). *Simians, Cyborgs, and Women: The Reinvention of Nature*. Routledge.

Haraway, D. (2006). Encounters with Companion Species: Entangling Dogs, Baboons, Philosophers, and Biologists. *Configurations 14*(1), 97–114. https://doi.org/10.1353/con.0.0002

Heathcote, D., & Bolton, G. M. (1995). *Drama for Learning: Dorothy Heathcote's Mantle of the Expert Approach to Education.* Pearson Education.

Hemingway, E. (2014). *A Farewell to Arms: The Hemingway Library Edition*. Scribner.

Horak, J.-C. (2006). Wildlife Documentaries: From Classical Forms to Reality TV. *Film History: An International Journal, 18*(4)*,* 459–475. DOI: 10.1353/fih.2007.0000.

Horak, J.-C. (2014). *Saul Bass: Anatomy of Film Design (Screen Classics).* University Press of Kentucky.

Honess Roe, A. (2013). *Animated Documentary.* 1st ed. Palgrave Macmillan.

Honeyborne, J. (Director). (2017). Blue Planet II [Television series]. BBC Studios.

Ireland, S. (Director). (2021). Puff: Wonders of the Reef [Film]. Disney+.

Jones, J. P. G., Thomas-Walters, L., Rust, N. A., & Verissimo, D. (2019). Nature documentaries and saving nature: reflections on the new Netflix series Our Planet. *People and Nature*, *1*(4), 420-425. https://doi.org/10.1002/pan3.10052

Kerrigan, S., Verdon, J., & Aquilia, P. (2018). Creative practice research in filmmaking and screen production. *Studies in Australasian Cinema, 12(2-3)*, 86–88. https://doi.org/10.1080/17503175.2018.1539283

Lipman, S. (2014, May 7). How “Blackfish” has changed our perceptions of whales and dolphins. One Green Planet. Retrieved from

http://www.onegreenplanet.org/animalsandnature/how-blackfish-has-changed-our-perceptions-of-whales-and-dolphins/

MacDougall, D. (1998). Beyond Observational Cinema. In L. Taylor (ed.) *Transcultural Cinema* (pp. 125–139). Princeton University Press.

Mitman, G. (2009). *Reel Nature: America's Romance with Wildlife on Film*. University of Washington Press.

Natusch, B., & Hawkins, B. (2014). Mapping Nichols' Modes in Documentary Film – Ai Weiwei: Never Sorry and Helvetica. *IAFOR Journal of Media, Communication & Film*, 2(1). https://doi.org/10.22492/ijmcf.2.1.07

Nelson, R. P., & Bertalan, D. (2015). *How to Make Science and Nature Films: A guide for emerging documentary filmmakers.* CreateSpace Independent Publishing Platform.

Nichols, B. (2010). *Introduction to documentary.* Indiana University Press.

Nichols, B. (1991). *Representing reality: Issues and concepts in documentary*. Indiana University Press.

Nixon, R., & Stevens, F. (Directors). (2014). Mission Blue [Film]. Diamond Docs.

O'Malley, M. P., Lee-Brooks, K., Medd, H. B., (2013). The Global Economic Impact of Manta Ray Watching Tourism. *PLOS One, 8*(5). https://doi.org/10.1371/journal.pone.0065051

Orlowski, J. (Director). (2017). Chasing Coral [Film]. Exposure Labs.

Palmer, C. (2010). S*hooting in the Wild: An Insider's Account of Making Movies in the Animal Kingdom.* Counterpoint Press.

Petterson, D. (2011). *The Moral Lives of Animals*. Bloomsbury Press

Pierce, M. (2021, December 9). *Giant manta becomes the first manta ray to be listed as an*

endangered species. Marine Megafauna Foundation. https://marinemegafauna.org/news/giant-manta-becomes-the-first-manta-ray-to-be-listed-as-an-endangered-species

Pollo, S., Graziano, M., & Giacoma, C. (2009). The ethics of natural history documentaries. *Animal Behaviour*, *77*(5), 1357–1360. DOI: 10.1016/j.anbehav.2009.01.022

Psihoyos, L. (Director). (2009). The Cove [Film]. Oceanic Preservation Society.

Pulver, A., (2021, April 25). *My Octopus Teacher, heartwarming nature film, wins best documentary Oscar.* The Guardian. https://www.theguardian.com/film/2021/apr/26/my-octopus-teacher-wins-best-documentaryoscar

Renov, M. (1993). Toward a Poetics of Documentary. *Theorizing documentary*, 12–36. Psychology Press.

Rohner, C. A., Pierce, S. J., Marshall, A. D., Weeks, S. J., Bennett, M. B., & Richardson, A. J. (2013). Trends in sightings and environmental influences on a coastal aggregation of manta rays and whale sharks. *Marine Ecology Progress Series, 482,* 153–168. DOI: 10.3354/meps10290.

Rowley, L., & Johnson, K. A. (2016). Anthropomorphic Anthropocentrism and the Rhetoric of Blackfish. *Environmental Communication*, *12*(2), 1–15. DOI:10.1080/17524032.2016.1167757

Russell, G. M., & Kelly, N. H. (2002, September). Research as Interacting Dialogic Processes: Implications for Reflexivity. *Forum: Qualitative Social Research, 3*(3). Retrieved March 4, 2024, from https://www.researchgate.net/publication/277173681_Research_as_Interacting_Dialogic_Proce
sses_Implications_for_Reflexivity/fulltext/58c252da92851c0ccbed93e9/Research-as-Interacting- Dialogic-Processes-Implications-for-Reflexivity.pdf

Rust, S., Monani, S., & Cubitt, S. (Eds.). (2012). Hollywood and Climate Change. *Ecocinema Theory*

and Practice. Routledge.

Smaill, B. (2016). *Regarding Life: Animals and the Documentary Moving Image*. SUNY Press

Shiel, M. (2012). *Hollywood Cinema and the Real Los Angeles*. The University of Chicago Press

Stewart, R. (Director). (2019). Reef Revolution [Film]. Reef Life Foundation.

Stoneman, R. (2019). Screen production research: creative practice as a mode of enquiry, edited by Craig Batty and Susan Kerrigan. *Alphaville: Journal of Film and Screen Media, 17.* 215–220. 10.33178/alpha.17.16.

Tabrizi, A. (Director). (2021). SeaSpiracy [Film]. AUM Films & Media.

Thompson, K., Bordwell, D., & Smith, J. (2022). *Film History: An Introduction*. McGraw Hill.

Walker, J. (2013). Eavesdropping in The Cove: Interspecies ethics, public and private space, and trauma under water. *Studies in Documentary Film, 7*(3), 209–232. DOI: 10.1386/sdf.7.3.209_1

Walsh, S. (2024). *The Documentary Filmmaker's Intuition.* Routledge

Wright, E. (2022). *Rockstar Games and American History: Promotional Materials and the Construction of Authenticity*. Walter de Gruyter GmbH & Co KG.

Yong, E. (2018, January 16). *Blue Planet II Is the Greatest Nature Series Of All Time*. The Atlantic. Retrieved on March 24, 2024, from https://www.theatlantic.com/science/archive/2018/01/blue-planet-ii-is-the-greatest-nature-series-of-all-time/550583/

Zalipour, A., & Nicholson, J. (2023). *Shama*, an insider looking in: a community-centred collaborative documentary production. *Media Practice and Education*, *24*(3), 291–308. https://doi.org/10.1080/25741136.2023.2180711

Appendix 1: Ethics Approval

28 April 2023

Arezou Zalipour
Faculty of Design and Creative Technologies

Dear Arezou

Ethics Application: **21/259 Manta Watch: Filmmaking environments and an oceanic documentary in Aotearoa**

On 10 September 2021 you were advised that your ethics application was approved.

We would like to remind you, that it was a condition of this approval that you submit to AUTEC the following:

- A brief annual progress report using the EA2 Research Progress Report / Amendment Form, available at http://www.aut.ac.nz/research/researchethics/forms, or
- A brief Completion Report about the project using the EA3 from, which is available online through http://www.aut.ac.nz/research/researchethics/forms. This report is to be submitted either when the approval expires on 10 September 2024 or when the project is completed;

It is also a condition of approval that AUTEC is notified if the research did not proceed or any adverse events occurring during the research. If there has been any alteration to the research, (including changes to any documents provided to participants) then AUTEC approval must be sought using the EA2 form.

To enable us to provide you with efficient service, please use the application number and study title in all correspondence with us. If you have any enquiries about this application, or anything else, please contact us at ethics@aut.ac.nz.

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: reb_j_pratt@outlook.com; Christina Milligan