

Article

Regulating Marine Mammal Tourism Management: Challenges and Opportunities for Effective Enforcement in Aotearoa/New Zealand

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Abstract

Marine mammal tourism (MMT) in Aotearoa/New Zealand operates under one of the world's most established environmental protection regimes, centred on the Marine Mammals Protection Act 1978 (MMPA) and Marine Mammals Protection Regulations 1992 (MMPR). Despite this reputation, persistent non-compliance and weak enforcement have raised concerns about the long-term sustainability of the MMT industry and the effectiveness of existing regulatory tools. Rapidly changing human pressures on marine ecosystems, including accelerating tourism growth and expanding recreational use of coastal waters, raise questions about the adequacy of static regulatory frameworks. This qualitative study investigates the challenges and opportunities for enforcement within New Zealand's MMT management system. Drawing on 40 in-depth, semi-structured interviews with four key stakeholder groups—the Department of Conservation (DoC), permitted tour operators, indigenous Māori representatives, and scientists—the research identifies systemic constraints that undermine regulatory effectiveness, including ambiguous legal definitions, difficulties proving intent, limited statutory powers, resource shortages, and outdated provisions inadequate for the challenges of a changing world. The findings reveal an over-reliance on commercial tour operators to perform quasi-enforcement functions, widespread frustration with warning-letter approaches that rarely escalate, and challenges for DoC officers operating in small communities where social proximity reduces their ability to enforce regulations impartially. These enforcement gaps contribute to unresolved stakeholder conflict, reduced regulatory credibility, and weakened conservation outcomes for marine mammals. The study outlines several pathways for strengthening governance, including legislative revision, enhanced compliance mechanisms, expanded enforcement capacity, and the use of external officers to reduce community-based conflicts of interest. The findings demonstrate how enforcement shortcomings can erode the legitimacy and effectiveness of conservation regimes and provide evidence-based recommendations for improving marine mammal protection and governance.



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1. Introduction

Marine mammal tourism (MMT) has grown substantially over recent decades, driven by growing public interest in wildlife encounters and blue economy tourism [1,2]. Globally, MMT encompasses a diverse range of activities—including whale watching, and swimming with dolphins, and viewing pinnipeds (seals, sea lions and walruses)—and is valued for its potential contributions to both local economies and conservation awareness [3–6]. However, a changing world presents mounting challenges for the sustainable governance of this industry. Accelerating tourism growth and expanding recreational use of coastal marine environments are increasing the pressures on marine mammal populations [7–9], while new technologies such as unmanned aerial vehicles (drones) are creating new challenges for the regulatory frameworks designed to protect them. In Aotearoa/New Zealand, this diversification is reflected in a national industry that, at the time of writing, comprises more than 100 marine mammal permits held by over 80 commercial operators, offering vessel-based, land-based, aerial, and in-water encounters with cetaceans and pinnipeds [10]. This scale and diversity of activity underlines why questions of enforcement and regulatory effectiveness, the focus of the present study, carry sizable practical weight for the industry and for the marine mammal populations it depends upon.

Aotearoa/New Zealand is widely regarded as a world leader in marine mammal conservation and its regime for managing MMT has been touted as best practice [11,12]. The country's regulatory framework, underpinned by the Marine Mammals Protection Act 1978 (MMPA) and the Marine Mammals Protection Regulations 1992 (MMPR), has been in effect for more than 30 years [11,13]. Under this framework, anyone wishing to undertake commercial activities involving marine mammals, whether dedicated whale- or dolphin-watching tours, swim-with encounters, or marine mammal viewing offered as part of a wider charter, kayaking, or aerial activity, must hold a permit issued by the Department of Conservation (DoC) [14]. Permit conditions specify, among other things, minimum approach distances (for example, at least 50 m from whales and 20 m from seals and sea lions hauled out on shore), a maximum number of vessels or aircraft permitted within a set distance of an animal or group, restrictions on approach angle and speed, limits on encounter duration, and circumstances requiring an encounter to be terminated if an animal shows signs of disturbance [13,14]. Drones, treated as aircraft under the Regulations, are similarly restricted to no closer than 150 m without a specific permit [14]. It is important to distinguish these legally binding conditions, which are enforceable under the MMPR, from the voluntary codes of conduct, site-specific guidelines, and operator best-practice recommendations that have also proliferated across New Zealand's MMT locations; the latter, while informative, carry no legal force and cannot themselves be the basis for enforcement action, a distinction that becomes central to the analysis presented in Sections 4 and 5. Despite these credentials, a variety of studies conducted in New Zealand and elsewhere have shown that the current patterns and rates of growth of marine tourism activities have adverse short- and long-term effects on marine mammals [2,7–9,15,16]. Moreover, the MMPR are frequently violated by marine mammal tour operators in various locations, and the sustainability of the industry is being questioned [17,18].

Ensuring compliance with wildlife protection regulations is a fundamental challenge in conservation management globally [19–21]. In the MMT context, enforcement is complicated by the free-ranging nature of marine mammals, the difficulty of monitoring marine environments, and the diversity of user groups involved [22,23]. These challenges are compounded when regulations are ambiguous, enforcement agencies are under-resourced, and the legal framework for prosecution is weak or difficult to apply [18,24]. These problems are intensified in a changing world where technological advances such as drones and GPS

devices create both new opportunities for monitoring and new regulatory blind spots not anticipated by existing legislation.

Aotearoa/New Zealand's waters host both resident and migratory cetacean and pinniped populations that are the focus of MMT activity, including bottlenose, common, dusky, and the nationally endangered Hector's and critically endangered Māui dolphins, sperm and humpback whales, and New Zealand fur seals [6–8,17,25]. These populations face a cumulative set of anthropogenic pressures—vessel disturbance and collision risk, changes in prey availability linked to fisheries interactions, underwater noise, habitat degradation, and the compounding effects of climate change on prey distribution—that make effective regulation and enforcement a matter of direct conservation consequence rather than a purely administrative concern [7–9,17]. This study investigates the barriers to effective enforcement within New Zealand's MMT governance system. Drawing on qualitative data from 40 semi-structured in-depth interviews conducted with four key stakeholder groups—the Department of Conservation (DoC), permitted tour operators, indigenous Māori representatives, and scientists—the study explores what interviewees identified as the principal challenges to enforcement, the consequences of inadequate enforcement, and possible pathways for strengthening the regulatory regime. The findings are situated within broader discussions of environmental law, sustainability governance, and marine mammal tourism management [26], and offer evidence-based recommendations that are relevant not only to Aotearoa/New Zealand but also to comparable jurisdictions worldwide facing increasing pressures on marine ecosystems.

This study is guided by a central research question: what do key stakeholders in New Zealand's MMT industry identify as the principal barriers to effective enforcement of marine mammal protection regulations, and what opportunities exist for strengthening the regulatory regime? This question is addressed through three more specific lines of inquiry: (i) how do DoC, permitted tour operators, Māori representatives, and scientists characterise the current state of enforcement and its consequences; (ii) what legal, operational, and sociopolitical factors do these stakeholders identify as constraining effective enforcement; and (iii) what pathways for strengthening enforcement do stakeholders propose, and how are these connected to the difficulties they describe? These questions are addressed empirically in Sections 4 and 5.

2. Literature Review

2.1. Marine Mammal Tourism and Its Management in a Changing World

The seas surrounding Aotearoa/New Zealand are home to both resident and migratory cetacean and pinniped species. Because of the proximity of a number of these species to the coast, MMT in New Zealand has grown rapidly, with tourists utilising different viewing platforms—including boat-based, land-based, air-based, and in-water encounters—to view, swim with, and photograph marine mammals [27]. Commercially, the industry is economically significant, particularly for coastal communities that depend on it as a primary source of income [11,12]. Prior to the COVID-19 pandemic, MMT was considered to have significant potential for further growth globally [1,2]. The post-COVID-19 recovery of international tourism has renewed these growth pressures, making robust regulatory frameworks more important than ever. This review is deliberately anchored in the Aotearoa/New Zealand context, reflecting the single-country case study design of the present research (see Section 3.1); international and comparative literature is drawn upon throughout, and particularly in the Discussion (Section 5.5), to situate the Aotearoa/New Zealand case within the wider global literature on MMT governance and regulation.

New Zealand's MMPA 1978 and MMPPR 1992 provide a framework that, while comprehensive in scope, is increasingly criticised as outdated for regulating both commercial and

recreational interactions with marine mammals. Under the MMPR, commercial operators must obtain permits issued by the Department of Conservation; offences under the MMPA, such as harassing or killing a marine mammal, can result in fines of up to NZ\$250,000 or up to two years' imprisonment [13,28]. Despite this framework, studies have consistently documented non-compliant behaviour among both permitted and non-permitted marine mammal tour operators, as well as private marine recreationists [9,27]. Non-compliance is not only a conservation concern; it also creates an uneven playing field between tour operators who abide by the rules and those who do not [18]. Critically, the 1992 regulations were not designed to address contemporary challenges, including the widespread use of drones for marine mammal viewing and the availability of GPS devices that could either assist or undermine regulatory oversight.

2.2. Enforcement Challenges in Marine Wildlife Tourism

The enforcement of wildlife protection regulations presents inherent difficulties across many contexts. In marine environments, the challenge is particularly acute: the open sea reduces opportunities for surveillance, marine mammals are mobile and unpredictable in their movements, and enforcement vessels are costly to operate [20]. When regulations are vague or difficult to apply in practice, enforcement agencies face the additional challenge of low prosecution success rates, making it difficult to justify the costs of legal action [18].

In fisheries management, where similar enforcement challenges have been studied for decades, a range of co-management approaches and compliance strategies have been developed [29]. Co-management is most commonly defined as an institutional arrangement in which responsibility and authority for resource management are shared between government and resource users, ranging from limited consultation through to genuine partnership and, in some arrangements, community-led management with government playing only an advisory role [30]. This distinguishes co-management from more limited forms of stakeholder engagement, such as consultation (in which government retains full decision-making authority and merely seeks input) or ad hoc collaboration (which lacks the formalised, ongoing sharing of responsibility that characterises co-management) [30]. Reviews of fisheries co-management arrangements indicate that their effectiveness depends on a number of conditions, including clearly defined boundaries and membership, genuine power-sharing and decision-making authority rather than symbolic consultation, mechanisms for mutual accountability between government and resource users, recognition of existing rights (including Indigenous rights), the integration of local and scientific knowledge, adequate institutional capacity on the part of both government and community partners, and a clear allocation of enforcement responsibilities [31]. In South Africa, for example, fisheries reform highlighted the challenges of implementing equitable access to fishing rights and achieving policy objectives at the community level [29]. The IUCN has recommended community-based warning systems, permit non-renewal systems, and convicted offender blacklists as mechanisms for improving compliance in coastal fisheries management [32]. These approaches may offer lessons for MMT management globally.

The challenges of enforcing wildlife regulations in small, remote communities have received comparatively less scholarly attention [33,34]. Research in rural law enforcement has identified the absence of anonymity as a significant stress factor for enforcement officers who must confront friends, family, or acquaintances in the course of their duties [34–36]. Moreto [37] similarly noted the lack of research on wildlife law enforcement rangers and their work-related stressors, arguing that this human dimension is frequently overlooked in conservation science research.

2.3. Emerging Technologies as Both Threat and Opportunity

A defining feature of the contemporary MMT governance landscape is the dual role of emerging technologies: they simultaneously generate new compliance challenges and offer new enforcement opportunities [38]. Unmanned aerial vehicles (drones) exemplify the threat side: their growing availability has enabled both commercial and recreational operators to conduct close aerial observations of marine mammals, generating noise and visual disturbance [26] that the 1992 MMPR did not anticipate and therefore does not directly regulate. Absent explicit provisions, enforcement officers currently lack a clear legal basis for responding to drone-related incidents [26].

At the same time, GPS tracking technology offers promise as an enforcement tool. Where tour vessel operators currently evade prosecution by claiming incidental encounters with marine mammals, mandatory GPS tracks could provide objective evidence of deliberate deviation toward a target species [26]. Taken together, these technological dimensions underscore the need for regulatory frameworks that can evolve alongside the technologies they are intended to govern, highlighting the importance of adaptive governance in a rapidly changing world [38,39].

The regulatory gap between the 1992 MMPR and current technological realities is substantial. Beyond drones and GPS, other tools are transforming marine enforcement [39]: Automatic Identification System (AIS) vessel tracking, for example, enables near-real-time monitoring of vessel movements [26]. In Aotearoa/New Zealand, regulation has not kept pace with these technologies, and enforcement officers may lack both the legal basis and the technical training to respond to technology-driven violations [26]. The MMPR, drafted before consumer drones existed, exemplifies this regulatory time-lag and requires urgent legislative attention.

2.4. Indigenous Māori Rights, Te Tiriti o Waitangi, and Enforcement in Marine Mammal Tourism

The rights and interests of indigenous Māori represent a distinct and legally significant dimension of marine mammal governance in Aotearoa/New Zealand that intersects directly with enforcement [40]. Under *Te Tiriti o Waitangi* (Treaty of Waitangi, 1840), indigenous Māori are guaranteed rights relating to the traditional use, protection, and management of the sea and its resources, including marine mammals, which are regarded as *taonga* (cultural treasures) under tikanga Māori [10,24,26,41]. The concept of *kaitiakitanga* (stewardship or guardianship of the environment) underpins Māori approaches to environmental stewardship and provides a culturally grounded framework for compliance that differs from the model embedded in the MMPA [10,42].

Despite this, the Marine Mammals Protection Act 1978 contains no explicit reference to Te Tiriti obligations, a gap that has contributed to broader calls for amendments to existing MMT regulations to better incorporate Māori principles and ensure active Māori involvement in decision-making [10,18,26,40]. It is important to recognise that *iwi* (tribes) and *hapū* (sub-tribes) are not homogeneous: different Māori communities hold distinct relationships with specific marine mammal species, coastal areas, and regulatory processes [40,42]. This diversity has implications for enforcement; approaches to compliance that fail to engage *iwi* as genuine partners in governance may struggle to achieve sustained legitimacy in coastal communities where Māori maintain significant cultural authority [10,41,42]. The potential for Māori-led or co-managed enforcement approaches, for example through the exercise of *kaitiakitanga* (guardianship) roles in monitoring and reporting non-compliance, remains underexplored adequately in both the MMT literature and current regulatory practice [10,18]. It should be noted that the Māori perspectives reported in Section 4 and drawn upon in Section 5.4 derive from four interviews with representatives connected to a single region in Aotearoa/New Zealand and are consequently indicative rather than

representative of the diversity of *iwi* and *hapū* perspectives nationally. This limitation, and the reasons for it, are discussed further in Sections 3.2 and 6.

3. Materials and Methods

3.1. Research Design

This study employed a qualitative single-country case study approach, adopting an inductive qualitative methodology using 40 semi-structured, in-depth interviews as the primary data collection method [43,44]. The case study approach was selected because it is particularly well suited to investigating complex, context-specific phenomena and capturing the perspectives of multiple stakeholder groups within a defined governance system [44]. A pragmatic research paradigm underpinned the study, allowing for the flexible use of methods to address the study objectives. Specifically, this study examines stakeholder perspectives on the enforcement of Aotearoa/New Zealand's marine mammal tourism management regime, focusing on the challenges that constrain effective enforcement and opportunities to strengthen regulatory compliance and management outcomes. The specific research question and sub-questions guiding this study are set out in Section 1. Enforcement was one of several thematic domains explored in the broader interview protocol (Section 3.2.2 and Supplementary Material S1); the present manuscript reports the findings relevant to enforcement specifically.

3.2. Data Collection

Data were collected from 43 participants via 40 interviews (36 individual interviews and four paired interviews, in which two participants from the same group were interviewed together at their own request; see Section 3.2.1), comprising 39 face-to-face interviews and one online interview, conducted across multiple sites in Aotearoa/New Zealand including the Bay of Islands (North Island), Hauraki Gulf (North Island), Kaikōura (South Island), and Akaroa (South Island). Participants were recruited through purposive and snowball sampling to represent four key stakeholder groups: the Department of Conservation (DoC) ($n = 16$), permitted and licensed MMT operators ($n = 15$), indigenous Māori representatives (*iwi*) ($n = 4$), and scientists ($n = 8$). Table 1 summarises the stakeholder-group composition and the predominant roles held by participants within each group. To protect participant confidentiality, site-level participant counts and detailed cross-tabulations by stakeholder group, location, and role are not reported, given the small sample sizes and the interconnected nature of the MMT industry. This approach consistent with the confidentiality undertakings given to participants under the study's ethics approval (Section 3.4).

Table 1. Participant stakeholder-group composition.

Stakeholder Group	<i>n</i>	Predominant Role Composition
Department of Conservation (DoC)	16	Managerial and operational (ranger/warrant officer) staff
Permitted tour operators	15	Managerial (owner/operations manager) and operational (skipper/guide) staff
Scientists/researchers	8	Academic and conservation-agency researchers
Māori (<i>iwi</i>) representatives	4	Managerial and operational roles within <i>iwi</i> -affiliated MMT operations
Total	43	

3.2.1. Recruitment and Sample Composition

Purposive sampling was used to identify and approach individuals directly involved in MMT management, operation, or research in Aotearoa/New Zealand, recruited primarily by email using publicly available contact details for the institutions and companies concerned. This was supplemented by snowball sampling, in which participants were invited to recommend other potential informants; this combination is well suited to studies of a defined, interconnected professional network such as New Zealand's MMT sector [43,44]. Māori participation was sought by approaching six *iwi* (three in the North Island and three in the South Island) by email, telephone, and, in one case, an in-person visit; four *iwi* accepted the invitation to participate (yielding the four Māori interviews reported here), one declined citing a lack of relevant information or views on MMT, one declined citing capacity constraints, and the remaining invitees did not respond. This recruitment history explains both the smaller Māori sample relative to the other stakeholder groups and its geographic concentration in one area; it is not a reflection of a deliberate sampling choice to under-represent Māori perspectives, but of differential response to an open invitation extended nationally. We return to the implications of this for the strength of claims made about Māori perspectives in Sections 5.4 and 7.

Four of the 40 interviews were conducted as paired interviews, at the request of the initially invited participant, who asked to bring a second, similarly knowledgeable colleague; this is a recognised variant of the semi-structured interview that can surface additional perspectives and interactional dynamics between participants working within the same organisation. The remaining 36 interviews were conducted individually. This accounts for the difference between the number of interviews conducted (40) and the number of participants involved (43).

We acknowledge a potential selection-bias risk associated with the recruitment of tour operators: purposive and snowball sampling within a competitive commercial sector may be more likely to reach operators who are willing to discuss regulatory shortcomings or to criticise the practices of competitors, potentially over-representing critical viewpoints relative to the wider population of licensed operators. We sought to mitigate this by recruiting participants across a range of managerial and operational roles, and by deliberately seeking out participants known to hold divergent or minority viewpoints; nonetheless, this risk cannot be fully eliminated in a purposive sampling design and is noted as a limitation in Section 6.

3.2.2. Interview Procedures

An interview guide, comprising a printed list of pre-set questions organised around the four research questions underpinning the wider study (see Section 1 and Supplementary Material S1), was developed and used to structure the interviews and ensure that all intended topics were explored, while a responsive interviewing technique allowed the researcher to follow up on issues raised spontaneously by participants. Interviews were conducted between May 2018 and March 2019, lasted between 20 and 240 min (mean approximately 90 min), and were audio-recorded with participants' informed consent. All interviews were conducted in English; participants were either native English speakers or fluent English speakers, and no interpreter or translation support was required. Māori terms used by participants (for example, *kaitiakitanga* and *taonga*) are retained in participants' own words throughout the Results and interpreted with reference to the established literature cited in Section 2.4. Thirty-nine interviews were conducted face-to-face, at a time and place of the participant's choosing (most commonly work offices, followed by coffee shops, vessels, home offices, and one restaurant), and one interview was conducted online at the request of a participant who could not meet in person. Participant observation

was also conducted during MMT tours at six of the field locations, and field notes were recorded in a research journal; most participant observations (the majority) preceded the corresponding interview, with a smaller number following it or, in one case, being conducted concurrently. Observational data were used to familiarise the researcher with the operational context of each site, to contextualise participants' accounts during subsequent interviews, and, together with field-note reflections, to support the triangulation described in Section 3.3. All data collection was approved by the Auckland University of Technology Ethics Committee (AUTEC; reference number 18/188).

3.2.3. Confidentiality, Positionality, and Reflexivity

Consistent with the ethics approval governing this research, no identifying information about individual participants (including nationality, age, or exact job title) is reported; participants are instead identified only by an anonymised code, broad role category (managerial/operational), and site. The lead researcher's position as an academic external to both the regulatory agency and the tourism operators studied was considered throughout data collection and analysis. Steps taken to manage this outsider position included spending extended periods at each research site where possible, clearly explaining the purpose of the research and the intended use of the data to all participants, conducting a substantial minority of interviews in informal, off-site settings (coffee shops, restaurants, and participants' homes) to reduce social distance, deliberately including participants known to hold minority or dissenting views, and maintaining a reflective field journal throughout data collection and analysis to document and interrogate the researcher's own assumptions [43,44].

3.3. Data Analysis

Qualitative data were analysed using a manual thematic analysis approach [43]. Thematic analysis is a method used for identifying, analysing, and reporting patterns (themes) within data [43] and is widely employed with interview data [45]. Following Braun and Clarke's [43] six-phase approach, analysis proceeded through: (1) familiarisation with the data via repeated reading of printed transcripts alongside participant-observation field notes; (2) generation of initial codes, annotated directly on the printed transcripts using highlighters and marginal notes; (3) searching for candidate themes by grouping related codes; (4) reviewing candidate themes against the coded extracts and the full data set for internal coherence; (5) defining and naming themes; and (6) production of the analytic narrative reported in Sections 4 and 5. Coding was conducted manually on printed transcripts rather than using qualitative data analysis software, and no automated or AI-assisted coding tools were used at any stage of the analysis. The analysis involved iterative reading, coding, and categorisation of the data, resulting in the identification of seven overarching themes. This study focuses specifically on the challenges and opportunities for effective enforcement, reported here as a single theme comprising seven interrelated subthemes (Sections 4.1–4.7; summarised in Table 2), and examines how evolving human activities and governance frameworks are responding to mounting pressures on marine mammal populations.

Table 2. Structure of the enforcement theme and its seven subthemes.

Subtheme	Core Issue	Predominant Stakeholder Voice(s)	Section
Nothing serious ever gets done	Perceived absence of consequences for observed breaches	Tour operators, corroborated by DoC	Section 4.1
Just a slap on the hand	Warning letters perceived as an insufficient deterrent	Tour operators, corroborated by DoC	Section 4.2

Table 2. Cont.

Subtheme	Core Issue	Predominant Stakeholder Voice(s)	Section
We're not an enforcement body	Operators' discomfort with an informal surveillance role	Tour operators, corroborated by DoC	Section 4.3
Make an example of violators	Calls for visible, deterrent enforcement action	Tour operators	Section 4.4
Hard to prove intent	Evidentiary difficulty under current legislation	DoC, corroborated by scientists	Section 4.5
Limited legal power to prosecute	Statutory and resourcing constraints on formal action	DoC, tour operators	Section 4.6
Small communities	Social proximity as a barrier to impartial enforcement	DoC	Section 4.7

Coding and theme development for the wider study were undertaken by the lead researcher alone, without a second coder or formal inter-coder reliability check; we acknowledge this as a limitation of the analytical process, discussed further in Section 6. This single-researcher approach is not uncommon in interpretivist qualitative case study research of this kind [44,45], and several steps were taken to support analytical transparency and trustworthiness in its place: iterative re-reading and revision of themes against the full data set (rather than a single coding pass), the maintenance of a reflexive field journal documenting analytical decisions, and triangulation across interview data, participant observation, field notes, and the wider literature, as described below.

The lead author's position as an academic external to the regulatory and industry contexts studied was considered throughout the research process, and reflexive field notes were maintained during data collection and analysis [43,44].

Regarding data saturation, thematic saturation was assessed iteratively: no substantively new enforcement-related themes emerged after approximately the 35th interview, providing confidence that the sample was adequate for the present analytical focus. This saturation assessment applies most directly to the two largest stakeholder groups (DoC and tour operators), which together accounted for the majority of interviews; given the smaller size of the scientist ($n = 8$) and, in particular, the Māori ($n = 4$) subsamples, we do not claim that saturation was independently achieved within these subgroups, and the findings attributed to Māori participants in Sections 4 and 5 should be read as indicative of the perspectives shared by these four participants rather than as saturated or representative of Māori perspectives on MMT enforcement nationally. Triangulation of data sources, including interview data, participant observation, field notes, and prior literature, was used throughout the analysis to strengthen the trustworthiness and reliability of findings [44,46,47]. Multiple data sources enabled convergent evidence to be developed, thereby increasing confidence in the interpretive accuracy of the study [44].

3.4. Ethical Considerations and Chronology of Data Collection

This research was approved by the Auckland University of Technology Ethics Committee (AUTC; reference 18/188), with approval granted on 28 May 2018 for a period of three years. All 40 interviews and the associated participant observations were conducted within this approved period, between May 2018 and March 2019 (Section 3.2.2); the approved ethics protocol covered the semi-structured interviews, participant observation, and the subsequent use of the resulting data, including direct quotation, in academic outputs arising from the research, of which the present manuscript is one. Data analysis, including the thematic analysis reported here, was undertaken following the completion of data collection.

The Discussion (Section 5) refers to legal and policy developments; most notably the December 2024 High Court judgment in *Environmental Law Initiative v Director-General of*

the Ministry for Primary Industries [48], which postdates the 2018–19 data collection period by several years. These are presented explicitly as subsequent developments that provide independent, later corroboration of concerns raised by participants during data collection, rather than as events that participants themselves were responding to; the distinction is discussed further in Section 5.2. Similarly, references in the Discussion to the current (2026) state of the regulatory framework, permit numbers, and industry scale (Section 1) draw on more recent published sources [10] and are distinguished from the interview data, which reflect stakeholder perspectives as expressed during the 2018–19 fieldwork period.

3.5. Scope of Enforcement-Related Claims

Several findings reported in Section 4 concern participants' characterisations of DoC's enforcement practice; for example, that responses to reported breaches typically consist of warning letters rather than escalated formal action. These characterisations are based on interview testimony and were not independently verified against DoC administrative records (such as counts of recorded violations, warning letters issued, or prosecutions initiated), which were not available to the researchers within the scope of this study. Accordingly, these findings are reported and should be read as participants' perceptions of enforcement practice, which may not fully align with DoC's internal records of enforcement activity; independent verification against such administrative data, where it can be obtained (for example, via an Official Information Act request), represents a valuable avenue for future research and is noted again in Section 7.

3.6. Use of Generative AI in Manuscript Preparation

Generative artificial intelligence (GenAI) tools were used in the preparation of this manuscript for language and editorial purposes only. GenAI was used to check and improve grammar, spelling, punctuation, sentence structure, and the clarity and flow of expression in text drafted by the authors. GenAI was not used to generate research data, to design the study, to collect or analyse data, to perform thematic coding or theme development, to interpret findings, or to generate results. All qualitative coding and thematic analysis were conducted manually by the lead researcher, as described above. All content produced with the assistance of GenAI was reviewed, verified, and edited by the authors, who take full responsibility for the originality, validity, and integrity of the content of this publication.

4. Results

Although non-compliance with the regulations may be deliberate or the result of a lack of awareness among some user groups, all user groups interacting with marine mammals are held accountable under the MMPR. The most serious offences under the MMPA, such as harassing or killing a marine mammal, may result in fines reaching NZ\$250,000, or penalties of up to two years' imprisonment [28]. The Department of Conservation is the management agency responsible for undertaking any disciplinary actions. However, the findings indicated that in practice, DoC was facing significant difficulties enforcing the current regulations. As one DoC operational staff member stated: "At the moment, we don't have a lot of power to do enforcement" (DoC-10, Operational, South Island). The data revealed that all four stakeholder groups interviewed in this study (DoC, researchers, tour operators, and *iwi*) were frustrated by the current state of enforcement under the MMPR. The seven subthemes that structure this section (Table 2) emerged predominantly from DoC and tour-operator accounts, reflecting the fact that these two groups have the most direct, day-to-day operational engagement with compliance monitoring, breach-reporting, and DoC's disciplinary process; scientist and Māori perspectives, which speak more directly to the adequacy and cultural legitimacy of the regulatory framework itself, are incorporated at

the points in this section and in Section 5 where they most directly bear on the enforcement issues raised by DoC and tour operators.

4.1. Nothing Serious Ever Gets Done

Several permitted tour operator interviewees expressed frustration over the fact that other user groups, such as non-permitted tour operators, often intentionally violated the regulations by deviating their path to interact with marine mammals. These interviewees used phrases such as ‘nothing happens,’ ‘nothing’s ever been done,’ and ‘nothing serious ever gets done’ to express their dissatisfaction. One tour operator described the situation:

There are lots of operators that don’t hold permits that will go and take their customers to the dolphins and even in the advertising. On purpose, absolutely, and there are boat names that continuously come up over and over and over again and we take all the details. We’ve got forms that we fill out every day. Every time we see the dolphins, where we saw them, what time it was, how many people we had on board and what other boats were in the area, and whether they’re commercial boats. I assume they all go back to the Department of Conservation. And like I said, over the years, there is the same boat names that keep coming up over and over again and as far as I’m aware nothing’s ever been done. (TO-7, Operational, North Island)

This passage illustrates the dual burden on permitted operators: they must comply with regulations themselves while also serving as unpaid, uncredited surveillance agents for the regulator.

The findings indicated that DoC tended to issue violators with just a warning letter, which many interviewees found to be an insufficient deterrent:

Like if we make a complaint or forwarded something to them, they will say: ‘Right, we did a follow up’ and normally what happens say this fishing boat here goes out and then goes right through a pod when we’re watching him, he gets a letter from DoC saying: ‘You shouldn’t do this!’ (. . .) Whereas if we did it, we’d lose our licence. (TO-17, Managerial, North Island)

4.2. Just a Slap on the Hand

One interviewee expressed frustration over the current state of enforcement, using the phrase ‘just a slap on the hand’ to describe the consequence violators received from DoC:

What we have witnessed him doing and we’ve actually got footage of it, is him viewing dolphins when he doesn’t have a dolphin permit. I’ve called the Department of Conservation and voiced my concerns. Yeah, he just got a slap on the wrist, told not to do it anymore and then two months later he’s out there doing it again. (. . .) I just believe most of the time if you make a complaint or you voice your concern about whatever it is, you know, it’s a slap on the wrist, it’s an email or warning, nothing serious ever gets done. It’s just what’s the point of having these permits if people aren’t abiding by them. (TO-14, Managerial, South Island)

When such enforcement-related views were shared with some DoC interviewees, they acknowledged permitted tour operators’ frustration and even expressed their own:

There’s not really any point having the regulations if you can’t do anything with it. (. . .) I’m fairly sure it has caused conflicts between them and as you said a second ago some of the proper operators definitely have expressed frustration that other people are getting away with it and DoC isn’t doing anything. (DoC-10, Operational, South Island)

4.3. We're Not an Enforcement Body

In addition to DoC's weak disciplinary actions against violators, a number of permitted tour operator interviewees reported that they felt pressured to carry out tasks similar to those of an enforcement body:

So what we know is many people do break the rules or the regulations and a lot of it sort of rested on the commercial operators like ourselves or [others] to then act like a police person. And then, you know, pass on this information to DoC who in [location removed] don't really have a presence on the water. And the thing if your regulator is not seen then people feel they can just do what they want to do. And then by default the commercial operators end up trying to be policemen which is not ideal. (TO-11, Managerial, South Island)

The findings also showed that DoC frequently directly requested permitted tour operators to carry out enforcement-related duties such as collecting evidence of violations when witnessed. This often led to frustration and heated arguments between the two stakeholder groups:

(...) they [DoC] say: 'if you've got evidence of something happened can you provide us with pictures and times and dates and GPS marks and all information?' and we're saying: 'well, why don't you do that?' [laughs]. That's not our job, our job is to take people out to marvel at the marine mammals not to say: 'Well this guy is too close to the whales, or they shouldn't be there.' And we'll raise it with DoC, but it would be DoC's job to go around and take pictures and jump up on the hill with their car and check things out, that should be their role. But that's when we get into this argument about the resource. Do they have the resources to do their job properly? (TO-11, Managerial, South Island)

4.4. Make an Example of Violators

When asked what DoC should do to deter those who regularly violated the regulations, several permitted tour operator interviewees emphasised the importance of making an example of violators: "Well, I just think to be a bit more serious about what they're monitoring and a bit more heavy-handed and make an example of some of these people I guess" (TO-14, Managerial, South Island). Similarly, another interviewee affirmed that publicising prosecutions on television might help raise awareness and reduce violations: "I think when you've got television programmes that show people getting prosecuted that might raise awareness" (TO-10, Operational, South Island).

4.5. Hard to Prove Intent

A major challenge faced by DoC staff seeking to prosecute a violator under the MMPA and MMPR was that of proving intent. One DoC interviewee described the evidentiary requirements:

Yeah, typically would it be fair to say that you need proof of intent, you need proof of offence of whatever the rule or regulation is, and you need proof of location and other details like time and date and things like that. (DoC-12, Operational, South Island)

A number of DoC interviewees explained that the way the MMPA and MMPR were written made it difficult to prove intent, owing to areas of legislative ambiguity:

Yeah, it's the way the regulations are written, that's a bit grey about whether they've deviated off course to guarantee the marine mammals or did the marine mammals come to them. And yeah, that's getting real interesting trying to prove that they actually deviated off course to look at the marine mammals (...). (DoC-13, Operational, South Island)

The challenge of proving intent was directly linked to the limitations of existing technology provisions. Another DoC interviewee suggested obliging non-permitted operators

to install GPS trackers on their vessels (currently non-mandatory) and provide GPS tracks when requested:

A lot of the charter fishing issues we have around there, the fishermen say ‘ah, we were just going to our fishing ground. We weren’t seeking out the dolphins. We didn’t follow them’ or whatever. If you can actually force them to provide a GPS track showing whether they have changed their route to view the dolphins, whether they deviated their path to do it, whether they followed them when they got there and stuff like that you could definitely use to, I guess have as evidence to prove their behaviour. At the moment, it’s just basically their word versus an observer’s. So it’s always hard to prove intent and things like that when they’re going there for the fishing. (DoC-10, Operational, South Island)

DoC’s account of the evidentiary difficulty was echoed independently by scientist participants, whose research-based assessments of the regulatory framework provide a complementary, non-operational perspective on the same problem. As one scientist put it, the underlying intent of the regulations was sound, but its practical application was not:

“I think the intent in the regulations was quite good, but my research showed that the application of it was not good. . . clearly there are [significant impacts on the animals]. So definitely the application has not been good” (Sc-3)

Another scientist framed the issue in similar terms:

“Things need to change in terms of the enforcement and how the rules are and how applicable they can be” (Sc-7)

These accounts corroborate DoC’s characterisation of the intent requirement as a genuine structural weakness in the regulations, rather than simply a resourcing or willingness problem on DoC’s part.

4.6. Limited Legal Power to Prosecute

The findings indicated that DoC had limited legal power to enforce the regulations and carry out a successful prosecution. One tour operator stated: “I don’t know that they’ve got the power to actually go and prosecute this guy and that guy and Joe Public” (TO-17, Managerial, North Island). A DoC interviewee confirmed:

At the moment, we don’t have a lot of power to do enforcement. My advice from the legal team in [identifier removed] was that the law probably isn’t good enough to actually hold up in court. And so, I mean it costs thousands and thousands of dollars to actually take someone to court, and if we probably won’t win the case anyway, there’s not a lot of point. (DoC-10, Operational, South Island)

The same interviewee continued that they needed more power to do enforcement, whether through a revision of the Act to remove loopholes or through better training of the rangers about what evidence to collect. The interviewee acknowledged having no legal training about what would stand up in court (DoC-10, Operational, South Island).

A number of DoC and permitted tour operator interviewees expressed a wish for DoC’s warrant officers to at least have the power to issue instant fines: “It would be nice to just be able to give them an instant fine (. . .)” (DoC-10, Operational, South Island). Instant fines were perceived as a higher level of enforcement than just a warning letter, which as previously mentioned, was often ignored.

4.7. Small Communities

The findings also revealed that living in a small town posed an additional challenge to enforcement. One DoC interviewee stated: “Yeah, that’s another problem as well, yeah. We live locally” (DoC-13, Operational, South Island). DoC interviewees used words such as

‘hard,’ ‘tricky,’ ‘that’s an issue,’ ‘get run out of town,’ and ‘we’ve got to live here’ to describe the difficulty of undertaking enforcement measures against people they knew personally:

X [identifier removed] is a very very small town, and there’s just so many conflicts of interest everywhere. And I mean the staff have all been there for decades, they’ve all got friends, they’ve all got family, yeah. Everyone knows someone who works for Y [identifier removed] or works for Z [identifier removed] or whatever. Obviously, people don’t [inaudible] their friends but then if they do they get run out of town or whatever. (DoC-10, Operational, South Island)

The same interviewee continued:

Definitely hard for the local DoC staff. So for the mystery shopping staff, we get people from out of town to come in and do it. But yeah, for the couple of local DoC staff to routinely do enforcement on people they know and people who they are friends with it is definitely a bit tricky. (DoC-10, Operational, South Island)

One interviewee suggested using external (non-local) enforcement officers to carry out enforcement activities, particularly with repeat offenders:

I think ideally as you could say well you can get these mystery shopping programmes happening and that’s done by people from out of town. So a lot of that enforcement can happen, and it’s not a problem at all. Things like the routine offenders as well, we get complaints coming in about it. And there’s no reason, like in a few months ago in [identifier removed] we had an incident it was reported in the newspaper saying: ‘[identifier removed]’ and then we got a couple of enforcement specialists from, one from [identifier removed] and one from [identifier removed] came up for a week and investigated this incident and did all of the process independently. I think there is no reason stuff like that couldn’t happen for these marine mammal operators too if there’s a regular breach. Particularly if it’s a regular person doing it over and over again. It wouldn’t be too hard to get someone out of town from somewhere to actually focus on that bad issue and that enforcement, and that could happen a lot more. So, yeah, less subjectively and more independent and get that expert skill in when we need it. (DoC-10, Operational, South Island)

4.8. A Māori Perspective on the Origins of the Regulatory Regime

While the enforcement-specific subthemes above draw predominantly on DoC and tour-operator accounts (Section 4, introductory paragraph), Māori interviewees offered an important historical perspective that bears directly on the enforcement questions discussed in Section 5.4. One *iwi* representative, reflecting on the transition from historical whaling to contemporary whale watching at Kaikōura, described Māori involvement in the original design of the current regulatory framework:

(...) initially when we first started the idea of going out to watch whales there was nothing in between to allow us to do that, no licences and so we played quite a big part in the early stages around 89, 90 in designing the existing Marine Mammals Protection Regulations which we have today. And really it was about what we believed would be probably the best way to go about viewing the mammals without impacting on them adversely. So we designed initially the rules that we operate under today, the regulations, voluntarily. They were tested over a period of time we sort of liaised and worked with the Department of Conservation at the time to form those regulations. (Iwi-3, Managerial, South Island)

This account indicates that Māori involvement in New Zealand’s MMT regulatory framework has historical precedent as a genuine, working-level collaboration between *iwi* and the regulator, rather than a wholly novel proposition; it is used in Section 5.4 to inform the discussion of contemporary co-managed enforcement models.

5. Discussion

The discussion is organised around the seven themes identified in Section 4. For each theme, we draw on the comparative literature to contextualise the findings and derive recommendations for strengthening enforcement, which are summarised in Section 7. The four stakeholder groups (DoC, permitted tour operators, indigenous Māori, and scientists) contribute distinct perspectives on these themes, while also highlighting the interrelationships and tensions that shape the effectiveness of the marine mammal tourism management regime.

5.1. Insufficiency of Warning-Letter Enforcement

The Department of Conservation (DoC) is the primary government agency responsible for administering and enforcing the Marine Mammals Protection Act 1978 (MMPA) and Marine Mammals Protection Regulations 1992 (MMPR). Enforcement responses range from informal measures, such as warning letters, to formal regulatory actions, including the suspension, restriction, amendment, or revocation of marine mammal tourism permits under the MMPR. In more serious cases, offences under the MMPA or MMPR may result in prosecution before the New Zealand courts [13,28].

As indicated by the findings, effective enforcement of legislative and regulatory requirements is essential for reducing non-compliance and achieving the conservation objectives of marine mammal protection. This finding is consistent with a substantial body of research demonstrating that robust enforcement is fundamental to effective marine conservation [19–21]. As noted in Section 3.5, the specific characterisations of DoC's enforcement response reported here (for example, reliance on warning letters) reflect participants' perceptions rather than independently verified administrative data; the consistency of these perceptions across both DoC and tour-operator participants, however, lends them a degree of corroboration that a single-source account would not carry. However, interviewees perceived enforcement to be insufficient.

As a result, instances of non-compliance, particularly among non-permitted commercial operators and private marine recreationists, were often believed to go unpunished. Participants suggested that this contributed to unresolved conflict among user groups and, in some cases, created incentives for further non-compliance when individuals observed regulatory breaches occurring without consequence.

These findings are consistent with those of New et al. [9], who argued that mandatory guidelines are hard to enforce and that non-compliance by both recreational and commercial boats is common. Similarly, Mulcahy and Peart [18] contended that recreational boaters may have less incentive to comply with the MMPR than do marine mammal tour operators, because of the lack of enforcement and consequences of non-compliant behaviour.

5.2. Over-Reliance on Tour Operators for Enforcement

This study corroborates Kessler and Harcourt's [20] findings, confirming that although on-water presence of law enforcement officers is fundamental for enforcing marine mammals' protection regulations, this is not always feasible. The data suggest that because DoC staff cannot be present on the water at multiple sites and for lengthy periods, DoC encourages permitted operators to assist in enforcement efforts by reporting any observed breaches of the MMPR. Such an approach, in effect, encourages operators to report on one another's behaviour, something that many are reluctant to do.

Sitar et al. [49] argued that when a responsible government authority has inadequate enforcement of marine mammal regulations, other stakeholder groups should play a larger role in law enforcement. However, the findings of this study indicate that other stakeholder groups are not always willing to play such a role. Several permitted tour

operators expressed dissatisfaction with this assigned role, arguing that they are not an enforcement body. Moreover, even when DoC is informed about a witnessed breach of the MMPR and necessary evidence is provided, DoC staff still seem not to take satisfactory enforcement action, which exacerbates feelings of frustration and disappointment.

The systemic nature of the enforcement concerns identified by participants is reflected in recent judicial findings. In December 2024, Justice Cheryl Gwyn of the New Zealand High Court, in *Environmental Law Initiative v Director-General of the Ministry for Primary Industries* [2024] NZHC 3824, found that DoC had maintained an unlawful policy of non-investigation and non-prosecution of offences under the Wildlife Act and the MMPA [48]. The Court also found that DoC had an unlawful policy of treating bycatch reporting under fisheries regulations as sufficient for commercial fishers to meet their separate reporting obligations under the Wildlife Act and the MMPA [48]. Although the case concerned protected-species bycatch rather than marine mammal tourism, the judgment lends broader support to stakeholder concerns regarding enforcement capacity, institutional reluctance to prosecute, and the need for stronger implementation of conservation legislation. These findings reinforce the calls for reform documented in this study. It is important to be precise about the evidentiary relationship between this case and the present study's findings: the interviews reported in Section 4 were conducted in 2018–19, several years before the judgment was delivered, and participants were therefore not responding to, or aware of, this specific ruling. The case is drawn upon here not as evidence of what participants experienced, but as a subsequent, independent legal finding; reached through a formal judicial process with its own evidentiary standard, that DoC's approach to enforcement under related conservation legislation exhibited the same underlying pattern (a reluctance to investigate and prosecute) that participants had already described from their own operational experience several years earlier. Used in this way, the judgment corroborates the durability of the concerns raised by participants rather than explaining or causing them.

5.3. Ambiguous Legislation and the Challenges of Proving Intent

Several interviewees in this study revealed that the MMPA and MMPR are perceived as vague and containing loopholes, which they believed made it difficult for DoC to mount successful prosecutions. These findings are consistent with aspects of Fumagalli et al. [2], who identified ambiguous terms in permit conditions and shortcomings in the enforcement of New Zealand's marine mammal tourism regulations.

Similarly, Mulcahy and Peart [18] noted that it is difficult for DoC to enforce the regulations due to legal and technical reasons, and that the Department has had difficulty bringing successful prosecutions on multiple occasions.

Enforcement issues are not unique to MMT; similar challenges occur in the fishing industry, where public goods in free-ranging marine environments are mostly unsupervised by enforcement organisations. Marine mammal tourism management could benefit from approaches proven effective in fisheries management, including fostering co-management, boosting stakeholder involvement in compliance efforts, and using community-based warning systems for violators [29,32].

The evidentiary challenge of proving intent is directly relevant to the 'Marine Mammals in a Changing World' context: GPS tracking technology, increasingly available and affordable, could potentially be mandated for non-permitted vessels to create an objective evidentiary trail, replacing the current reliance on the word of observers against defendants. Similarly, drone-based surveillance, though raising its own regulatory questions, could expand DoC's on-water monitoring capacity without proportional increases in staffing costs. The 1992 regulations, however, currently lack provisions addressing either GPS mandate requirements or drone use, representing a critical gap in a rapidly evolving

technological landscape. While mandatory GPS tracking of private vessels represents a significant regulatory intervention that may raise privacy concerns, the conservation objectives underpinning the MMPA provide a strong basis for considering such measures as part of future legislative or regulatory reform, particularly given the well-documented conservation costs of continued non-compliance.

5.4. Enforcement in Small Communities

The findings from DoC interviewees, particularly operational staff, indicate that it is difficult to take enforcement action against individuals they know personally and live amongst. These findings align with studies in rural law enforcement [34–36], which noted that the absence of anonymity is a significant stress factor for enforcement officers. Oliver and Meier [34], for example, argued that when officers respond to calls, they may be confronting friends, family, or acquaintances, negatively affecting their ability to perform their duties effectively.

To support regulatory enforcement officers in small communities, previous research has tended to focus on recommending peer support and mental health counselling [34,35,37]. However, some DoC interviewees in this study recommended deploying external enforcement officers to help relieve local warrant officers of the pressure of enforcing the regulations on those they live amongst. Falcone et al. [50] reported that appointing law enforcement officers from outside a community has often been viewed as conflicting with local norms and values. Hafley and Tewksbury [51] similarly describe an abiding distrust of outsiders in tight-knit rural communities. There is, therefore, a range of contrasting views on the challenges of enforcing MMT regulations in small remote communities. This tension between the impartiality that external officers bring and the local acceptance they may lack is a productive area for future research and policy design. The DoC's existing "mystery shopping" model (sending staff from out of town for specific surveillance operations) may represent a pragmatic intermediate solution, allowing local officers to maintain community relationships while independent officers handle enforcement actions against repeat offenders.

From a Māori perspective, the enforcement challenges documented in this study carry additional significance. The *kaitiakitanga* (guardianship) responsibilities that Māori hold in relation to marine *taonga* (treasured species) suggest that effective enforcement regimes should engage *iwi* as genuine partners rather than as one stakeholder category among four. This is not merely an aspirational principle: as reported in Section 4.8, one Māori participant with first-hand involvement described *iwi* as having actively co-designed the MMPR with DoC at the time of their introduction in the late 1980s and early 1990s, indicating that working-level Māori–DoC collaboration on the substance of the regulatory regime has historical precedent that a contemporary co-managed enforcement model could build upon, rather than being an entirely novel institutional proposition. The absence of explicit references to *Te Tiriti o Waitangi* or Treaty principles within the MMPA, as noted in Section 2.4, may constrain opportunities for formally recognised *iwi* involvement in compliance and enforcement, even where local *hapū* hold significant cultural authority and responsibilities within the relevant coastal areas. Future legislative reform could explicitly incorporate *kaitiakitanga* as a governance principle and explore co-managed enforcement models through which *iwi* can exercise customary stewardship roles in ways formally recognised by the regulatory regime [10,18,26,30,31]. We reiterate, however, that this discussion draws on only four Māori interviews, all connected to a single region (Section 3.2.1); it should therefore be read as identifying a promising and historically grounded direction for policy and further research, rather than as a claim that the perspectives of these four participants can stand for the range of views held across *iwi* and *hapū* nationally.

5.5. Outdated Legislation and Emerging Technologies

The Marine Mammals Protection Regulations 1992 (MMPR) were frequently criticised by interviewees as being outdated and consequently insufficiently equipped to regulate emerging technologies such as drones. Since the regulations were developed more than three decades ago, the marine mammal tourism (MMT) industry has undergone significant change, including the growth of pinniped-based tourism and the introduction of new technologies such as drones or unmanned aerial vehicles (UAVs). In response to these developments, various guidelines have been developed to assist operators and regulators. However, interviewees noted that, while these guidelines are well-intentioned, they are not legally binding and therefore cannot be enforced. Most participants therefore advocated for a comprehensive review and revision of the regulatory framework. These findings are consistent with those of Chalcobsky et al. [52], who found that whale-watching regulations in Patagonia could be strengthened by making them more adaptable and easier to amend, and with Hartel et al. [53], who argued that marine conservation regulations should be capable of responding to new scientific knowledge and emerging management challenges.

The proliferation of drones (unmanned aerial vehicles, UAVs) as recreational and commercial tools for marine mammal viewing further highlights the need for adaptive governance capable of responding to technological change. While drones have the potential to disturb marine mammals through noise and visual intrusion, they may also provide benefits for non-invasive monitoring and research. In the absence of specific provisions within the MMPR, enforcement officers may lack both the legal authority and operational guidance required to respond effectively to drone-related incidents. Legislative reform to address emerging technologies, strengthen evidentiary requirements for prosecution, and consider mechanisms such as GPS tracking for non-permitted vessels would represent an important step towards a regulatory regime better equipped to meet contemporary conservation challenges. Participants further recommended that any review of the regulatory framework include meaningful input from all key stakeholder groups, including DoC, MMT permit holders, *iwi*, scientists, and the wider tourism sector.

Importantly, the enforcement challenges identified in this study are not unique to Aotearoa/New Zealand. Recent international research has documented similar compliance and enforcement issues in other marine wildlife tourism contexts. For example, Ninh et al. [54] found widespread rule-breaking at a major whale shark aggregation site in Mexico, even when a patrol vessel was present. Similarly, studies of whale-watching tourism in Mexico [55] and Timor-Leste [56] highlighted the importance of effective regulation, enforcement, and legal compliance in achieving sustainable tourism outcomes. The picture is not uniformly one of weak compliance, however: research on New Zealand fur seal swim-tourism in the Bay of Plenty found the seal-swim industry to be highly compliant with the Marine Mammals Protection Regulations and permit conditions, in a region with only a few licensed operators [57]. Conversely, research on human–wildlife interactions involving Galápagos sea lions has documented significant non-compliance with protection measures among some resource users, alongside broader conflicts arising from the overlap between fisheries activity, tourism growth, and sea lion habitat use [58]. Read together, these comparative cases suggest that compliance outcomes in marine mammal tourism are shaped less by the mere existence of formal regulation than by the interaction between enforcement capacity, the number and diversity of operators subject to a given regime, and the socioeconomic pressures faced by resource users; factors that vary considerably even among jurisdictions that share broadly similar legal instruments. Collectively, these studies suggest that enforcement deficiencies represent a broader governance challenge within marine mammal and wildlife tourism management. Consequently, the Aotearoa/New Zealand case offers insights that may be relevant to other jurisdictions seeking to strengthen

regulatory effectiveness and improve conservation outcomes, although, as we discuss further in Section 7, the extent to which findings from a single-country qualitative case study can be generalised to jurisdictions with different legal traditions, enforcement resourcing, and industry structures should be treated as a matter for further comparative research rather than assumed.

6. Study Limitations

A number of limitations should be noted. First, thematic coding for this study was undertaken manually by a single researcher without a second coder or formal inter-coder reliability check (Section 3.3); while several measures were taken to support analytical transparency, independent replication of the coding would strengthen confidence in the findings. Second, the purposive and snowball sampling of tour operators may have been more likely to reach operators willing to voice criticism of regulatory shortcomings or of non-compliant competitors, and the findings should be read with this potential selection bias in mind (Section 3.2.1). Third, claims in Section 4 regarding the nature of DoC's enforcement responses reflect participant perceptions rather than independently verified administrative records; obtaining and analysing DoC's own enforcement statistics (numbers of warning letters, escalations, and prosecutions) would allow these perceptions to be checked against documented practice, and represents a clear priority for future research. Finally, because data collection took place between May 2018 and March 2019, the findings describe the regulatory and enforcement environment as it was perceived during that period; while the core structural issues identified (ambiguous legislation, resourcing constraints, and community-proximity effects) are unlikely to have resolved themselves in the intervening years, and are corroborated by the independent 2024 judicial finding discussed in Section 5.2, readers should bear this chronology in mind when applying the findings to the current regulatory context.

7. Conclusions and Recommendations

This study examined the legal, operational, and sociopolitical barriers to effective enforcement within Aotearoa/New Zealand's marine mammal tourism governance system, drawing on qualitative data from 40 semi-structured interviews with four key stakeholder groups. The findings reveal a governance system under pressure from multiple directions, including ambiguous and outdated legislation that makes prosecution difficult, insufficient resources limiting DoC's on-water presence, an over-reliance on permitted tour operators to perform quasi-enforcement functions, and the challenges of enforcing regulations in small, tight-knit communities where social proximity can create conflicts of interest for local DoC officers.

The consequences of these enforcement gaps are significant. Non-compliance by non-permitted operators and private recreationists is often perceived to go unpunished, creating an uneven playing field for permitted operators and reducing the credibility of the regulatory regime. Feelings of frustration were reported across all stakeholder groups, potentially undermining trust in DoC and reducing the likelihood of voluntary compliance. Most importantly, weakened enforcement may compromise the ability of the regulatory regime to achieve its conservation objectives and protect marine mammals from increasing human pressures. These conclusions regarding the perceived state of enforcement and its consequences are directly and consistently supported by the interview data reported in Section 4. The interpretation that these dynamics reflect deeper structural features of the regulatory regime (rather than, for example, isolated implementation failures) is a plausible reading of the evidence that would benefit from further verification against DoC's own administrative and enforcement records (Section 3.5), which fell outside the scope of the present study.

While this study captured the perspectives of four key stakeholder groups, future research could broaden the analysis by incorporating the views of recreational boaters, non-permitted commercial operators, and drone users, all of whom were identified by participants as important sources of non-compliance. Further research could also seek more systematic representation of diverse *iwi* and *hapū* perspectives across regions, recognising that Māori communities are not homogeneous and that views may vary between and within *iwi* and *hapū*.

Based on the findings of this study, and linked explicitly below to the sections in which the relevant evidence is presented, the following recommendations are offered for improving the effectiveness of marine mammal tourism enforcement in New Zealand and, with appropriate caution given the single-country scope of this study (Section 5.5), for consideration in comparable jurisdictions.

(1) *Legislative revision*: The MMPA and MMPR should be reviewed and updated to address existing loopholes, clarify ambiguous definitions (including the intent requirement for prosecution), and incorporate provisions relating to emerging technologies such as drones and other evolving forms of marine recreation. The review process should include all relevant stakeholder groups. This recommendation follows directly from the evidentiary and legislative-ambiguity difficulties reported by DoC and corroborated by scientist participants (Sections 4.5 and 4.6).

(2) *Implement adaptive management*: The MMT regulatory regime should adopt a more adaptive management approach, enabling regulations and enforcement strategies to respond to new scientific evidence, changing tourism practices, and technological developments rather than remaining static over extended periods. This responds to participants' characterisation of the MMPR as outdated relative to technological change (Section 5.5).

(3) *Improve stakeholder collaboration*: Meaningful and regular engagement between DoC, Māori, permitted tour operators, and scientists should be formalised to improve communication, build trust, and support shared responsibility for the long-term sustainability of the industry. This recommendation is grounded in the operator–DoC friction documented in Sections 4.1–4.3 and in the historical precedent for Māori–DoC collaboration on regulatory design described in Section 4.8.

(4) *Increase resources*: Additional funding and staffing for DoC's conservation and enforcement functions are needed to enable greater on-water presence, more consistent compliance monitoring, and improved investigative capacity. Resources for ranger training in legal evidence gathering should also be increased. This follows from DoC participants' own accounts of resourcing constraints and their over-reliance on permitted tour operators for monitoring (Sections 4.3 and 5.2).

(5) *Enhance education and interpretation*: Sustained investment in public education and interpretation programmes, targeting schools, tourist facilities, boat ramps, and online platforms, is essential for increasing awareness of regulations and conservation values among all user groups and reducing the need for punitive enforcement. Although raised comparatively briefly by participants relative to the other recommendations, this reflects tour operators' and DoC's shared observation that many observed breaches (Sections 4.1 and 4.2) appeared to reflect a mix of deliberate and unaware non-compliance.

(6) *Improve compliance*: Drawing on lessons from fisheries management and other natural resource sectors, community-based warning systems for repeat offenders, permit non-renewal mechanisms, co-management compliance roles for key stakeholders, and the potential use of technologies such as GPS tracking should be explored as tools for improving compliance. This recommendation draws directly on the GPS-tracking suggestion made by DoC participants themselves (Section 4.5) and on the fisheries co-management literature discussed in Section 2.2.

(7) *Strengthen enforcement*: DoC warrant officers should be empowered to issue infringement notices for minor offences where appropriate. For enforcement actions in small communities, particularly those involving repeat offenders, the deployment of external enforcement specialists should be considered to promote greater impartiality and independence. This recommendation is drawn directly from DoC participants' own proposals regarding instant fines and external "mystery shopping" enforcement (Sections 4.6 and 4.7).

The finding that Aotearoa/New Zealand's marine mammal protection regime is perceived by key stakeholders as deficient in its enforcement capacity is particularly concerning given the country's status as a widely cited exemplar of best practice in marine mammal tourism management [11,12]. If a jurisdiction with New Zealand's comparatively long-established regulatory framework and international reputation is perceived by its own stakeholders as struggling with enforcement, this raises a hypothesis worth testing elsewhere; namely, that similar or more acute enforcement challenges may exist in jurisdictions with less developed governance frameworks. We present this as a hypothesis for future comparative research rather than as a finding directly demonstrated by the present single-country case study, which did not collect data outside Aotearoa/New Zealand. The recommendations presented here are intended not only to inform policy and practice in Aotearoa/New Zealand, but also to contribute to broader international discussions on marine mammal tourism governance, regulatory effectiveness, and the challenges of enforcing marine conservation regulations in a rapidly changing world.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/oceans7050085/s1>, S1: Interview guide.

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