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Making a place special—The development of Restorative Marine Ecotourism at a dive destination village

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Marine ecotourism is a multifaceted social-ecological activity that seeks to balance economic benefits with support for sustainability and positive ecosystem impacts. Successful marine ecotourism relies upon ecosystem health and has the potential to restore or regenerate nature. Restoration efforts of marine habitats aim to foster social and ecological resilience, requiring novel management strategies. To date examples of successful restorative tourism are rare in marine habitats. It is early days, emphasizing the importance of exploring opportunities for the development of restorative practices. To help frame opportunities for the development of Restorative Marine Ecotourism (RME), this study explores the relationship between ecological restoration initiatives and marine ecotourism in the New Zealand village of Tutukaka. This qualitative study assessed stakeholders' perspectives of opportunities and challenges to develop local RME initiatives in Tutukaka, where development has been strongly influenced by the possibility to access a nearby offshore marine reserve and internationally famous dive site. Data were obtained from semi-structured interviews with marine ecotourism businesses, ecological restoration actors, and governance authorities, and analyzed through thematic analysis. The interviews identified a set of core social-ecological relationships around which strategies to guide the development of RME coalesce: ongoing coastal and marine environmental issues and the discussion around how best to address them; opportunities to develop local restoration initiatives; economic and ecological challenges to realizing those opportunities; and the costs, benefits and opportunities of RME. Interview respondents emphasized the importance of diverse approaches to address the challenges around RME development, including collaboration among stakeholders, the willingness to experiment widely around experiential learning and take risks, and importantly adopting strategies to make places "special." This study offers insights that can inform the planning and implementation of RME initiatives at a local scale to support the achievement of both ecological restoration goals and sustainable tourism practices. These include trusted relationships among stakeholders, fostering bottom-up processes, and the value of producing social-ecological knowledge. The Tutukaka case highlights possible avenues for restoration to effectively contribute to marine ecotourism. The focus on the

"specialness of place" highlights the importance of place-based knowledge and preservation that facilitates trust, entrepreneurialism, environmental ethics, and supportive management.

KEYWORDS

Restorative Marine Ecotourism, marine ecological restoration, citizen science, sustainable development, dive tourism, restorative economies, social-ecological systems

Introduction

Restoring marine ecosystems' structure and function represents a significant challenge in contemporary ecology (Borja, 2014). A paradigm shift from exploitative approaches to fostering restorative connections with the environment is widely acknowledged as essential in combating environmental degradation (e.g., Gann et al., 2019; Barford and Ahmad, 2021). Paradigm shifts can take different forms and take place over different timeframes. One approach to stimulating such shifts is the concept of restorative economies (Morseletto, 2020). Restorative economies go beyond the notion of sustainability by prioritizing human agency and actively seeking to enhance biodiversity and improve the health of degraded ecosystems (Morseletto, 2020). The primary challenge for restorative economies lies in promoting practices that not only avoid causing harm but also contribute to both positive community development and ecological outcomes. Despite the inclusion of sustainability and restorative objectives in national and international environmental agendas for many years, such as the United Nation's (UN) Sustainable Development Goals, top-down policy driven approaches have consistently fallen short of achieving those objectives (Wesselink et al., 2011; Loorbach, 2020). The recent literature has encouraged a more community driven, bottom-up and experimentation-based focus in initiating transitions (e.g., Le Heron et al., 2016; Dowell et al., 2023; Forrest et al., 2023), and the integration of community participation into decision-making processes (Wesselink et al., 2011).

In the wider context of interest in sustainable development and sustainability transitions, academics and policy makers have become increasingly interested in marine ecotourism (Milne et al., 2021a). Marine ecotourism is argued to have the potential to deliver benefits to both the environment and the hosting communities by coupling successful tourism activities and ecological restoration (e.g., Hesley et al., 2017). For instance, ecotourism can generate funds for conservation programs, enhance the quality of destination environments, foster environmental stewardship, provide economic benefits to communities, and contribute to the social and cultural revitalization of coastal communities (Garrod and Wilson, 2003). By adopting a restorative approach, ecotourism can enhance the visitor experience while aiding biodiversity upon which both tourism and local communities depend (Garrod and Wilson, 2003). This paper advances this literature by asking what lessons can be derived for advancing an ecotourism agenda from a small case study of an initiative in Aotearoa-New Zealand. To do this we adopt two defining focuses.

First, the paper focuses attention on what we call Restorative Marine Ecotourism (RME) to emphasize the objective of ecological restoration within marine ecotourism. RME accents ecological considerations in the balance of ecological and social-economic goals of ecotourism, which is understood as tourism that more or less integrates these often contrasting goals into an enhanced tourist experience (Garrod and Wilson, 2003). The paper complements the current surge of interest in regenerative tourism, which envisions a tourism experience built on distinctive, place-based encounters and mutually beneficial connections with living systems (Bellato et al., 2023). This label is often applied as much to the tourist's mental, physical, and emotional regeneration as to the regeneration of local ecologies. By referring to "restoration", a term with clear purchase in restoration ecology, we aim to remove any doubt that our underlying concern is with local ecologies (see Morseletto, 2020). This emphasis on promoting a tourism that identifies opportunities to leverage across different social, economic, and ecological objectives to achieve mutually beneficial outcomes closely complements regenerative tourism and refers to many of the same activities and objectives.

Second, the ecosystem and place-based focus of RME directs attention to case-specific settings, raising questions of scale and replicability in both research and strategic promotion of RME. In this paper we focus on a single case experiment in RME. We ask what insights might be derived from bottom-up, locally driven, experimental initiatives, learning from the community and diverse economy literatures (Gibson-Graham et al., 2013; Roelvink et al., 2015; Forrest et al., 2023), the case itself, and other cases of successful ecological-economic and marine tourism initiatives in Aotearoa (e.g., Lewis et al., 2023). The paper begins from the position that transformational change can emerge from the bottom up through the replication and proliferation of successful experiments. In this way, we imagine a coastal and marine social-ecological-economic future in which place-based RME initiatives displace volume-driven, industrial tourism. Scale is important in addressing two major challenges that impede marine ecosystem restoration: scaling up restoration initiatives to achieve significant ecological impact (Danovaro et al., 2021), and effectively integrating social and ecological priorities (Abelson et al., 2020), which we demonstrate can be achieved at local levels. Upscaling of restoration initiatives can go together with localized RME initiatives. The introduction of a marine protected area, for example, can scale-up ecological restoration significantly while also being supported by tourism of different forms and enterprise scales. Here the accent is on the diversification and integration of ecological restoration practices within the specific niche of marine ecotourism and voluntourism. The nature of

tourism is undergoing significant changes, driven by recent global crises, including the climate crisis and the disruptions caused by the COVID-19 pandemic (Becken and Hay, 2007; Gössling et al., 2020). These challenges have presented an opportunity to reinvent business practices and operations and have, for a brief period at least, given restoration a new currency (Everingham and Chassagne, 2020). While policy responses to these crises may vary (Becken and Loehr, 2022), examples from ecotourism operators and local communities demonstrate that the tourism sector is evolving, with a growing emphasis on the 'eco' aspect of ecotourism (e.g., Hammerton et al., 2012; Lucrezi, 2021; Howlett et al., 2022; Forrest et al., 2023).

Bringing these focal points together to promote ecological restoration in a marine context adds further complexity. Marine ecosystem restoration poses additional challenges due to underwater operations (Raffaelli et al., 2005), higher costs (Bayraktarov et al., 2016), and the "out of sight, out of mind" syndrome affecting many elements of society when it comes to marine threats and challenges (Riera et al., 2014). Ecotourism operators and staff can contribute to longitudinal research and conservation planning, maintain continuity in conservation projects, and offer important interpretative experiences (Cerrano et al., 2017; Ward-Paige et al., 2020; Hermoso et al., 2021). Importantly, when restorative actions come from stakeholders that directly benefit from the restored marine environments, this can also lead to social-economic benefits. Engaging stakeholders, including tourists, businesses, and communities, in restorative initiatives enhances public interest in ecological degradation, restoration efforts, and fosters a culture of ecological action (Schaffer and Tham, 2020; Forrest et al., 2023). Collaboration among ecotourists, local stakeholders, and research institutions supports evidence-based decision-making and broader conservation planning (Ellis, 2003; Freiwald et al., 2018). This paper presents a case study where marine ecotourism stakeholders actively engaged in conservation planning and passive restoration by contributing to establish and look after a successful offshore marine reserve.

Tutukaka is a small village situated on the east coast of Northland, on the North Island of New Zealand, that covers 7 km^2 and had an estimated population of 810 as of June 2022 (Statistics New Zealand, 2022). Tutukaka is the home of beautiful coastlines, beaches, and fantastic scenery, with a very rich culture and Māori (Indigenous people native to New Zealand) history. This case study was selected based on the presence of marine ecotourism ventures, the type of marine restoration actions in place at the location (passive restoration), and because of already-established relationships in and around the study location to facilitate participants' engagement. Located 24 km off the coast of Northland adjacent to the shelf break, the second marine reserve in New Zealand was established around the Poor Knights Islands in 1981, and fully protected from extractive activities in 1998, though not without issues linked to the public consultation processes and significant iwi (native group associated with a distinct territory in New Zealand Māori society) claims on fishing rights (Taylor and Buckenham, 2003). Since the marine reserve's establishment, several marine tourism and ecotourism ventures have flourished on the Tutukaka Coast (Milne et al., 2021b) thanks to the spectacular underwater scenery restored by the legal protection of the surrounding waters (Sim-Smith and Kelly, 2009; Ballantine, 2014). Tutukaka represents a safe harbor to access the Poor Knights and is located just 2.5 h from Auckland, making it easily reachable from the international airport and the biggest city in the country.

The early underwater explorer and marine conservationist Jacques Cousteau rated the Poor Knights Islands as one of the top 10 dive spots in the world (Warne, 2006), and it is still just as highly ranked. The islands benefit from a very special position that puts them close to the edge of the continental shelf with its nutrient-rich waters, are home to some of the country's lushest kelp forests (typical of temperate rocky reefs), and they lie near the path of the warm East Auckland Current, which delivers occasional tropical visitor species, some of which settle on the reef permanently (Schiel et al., 2018). The islands are the remains of a volcano that erupted 2–10 million years ago, leaving them with very distinctive underwater geological structures (Ayling and Schiel, 2003). The unique geological and ecological characteristics overlap with a rich and complex Māori history; both of the main islands (Tawhiti Rahi and Aorangi) were once home to 400 Māori from the Ngātiwai iwi who inhabited them until the 19th century (Fraser, 1926) when a period of inter-tribal warfare led to the islands being abandoned and declared tapu (a traditional Māori concept denoting something holy or sacred, involving spiritual restriction or prohibitions, Bambridge, 2016) (Fraser, 1926). They have remained uninhabited ever since. After Europeans arrived, the islands became part of the crown estate. The first scuba dive at the Poor Knights Islands took place in 1948 (Taylor et al., 2011) and over the following years the islands became a popular destination for spearfishermen, then underwater naturalists and photographers, marine scientists, and recreational divers. Pioneering divers started exploring what then became the most famous dive sites at the Poor Knights during the 1960s and 70s while finding and photographing new species (Warne, 2006). Today the islands support a thriving tourism industry centered around snorkeling and diving, attracting ~15,000 divers per year (Edney, 2004).

Since the creation of the marine reserve, the largest change has been seen in the increased abundance of the preferred target species for fishers, the New Zealand snapper (*Chrysophrys auratus*), but some of the subtropical species that had declined in the 1970s have yet to recover (Schiel et al., 2018). Taylor et al. (2011) suggested that there have been no signs of recovery at the community level, but that no-take protection appears to have stopped further change. Local divers reported large and steady long-term declines in abundances of charismatic benthic species such as black corals and tube sponges, and of several large predatory fishes, but a substantial increase of sharks and New Zealand snapper after the implementation of the reserve. Among those who helped to establish the no-take reserve was Jeroen Jongejans, who started a dive company at Tutukaka in the early 1990s and was the director of Dive! Tutukaka until his death in 2022. Dive! Tutukaka is one of the biggest dive operators in New Zealand. Since it was established, other tourism activity operators have come to the settlement, which now has a thriving coastal tourism and recreational fishing-based economy. A number of smaller ecotourism and community-driven restorative initiatives are emerging in the coastal space

and there is growing pressure for further protection of the coastal area.

As yet, the literature offers little guidance on the key social-ecological relationships involved in restoration economies, or how restoration economies might be implemented, especially in marine environments (Blangy and Mehta, 2006). Tourism is a multi-faceted industry that operates in a vulnerable social-ecological system where resilience is paramount and yet constantly uncertain (Hussain and Haley, 2022). In the context of ecologically sensitive local development centered around the ocean, Lewis et al. (2023) have adopted Li (2014) idea of resourcefulness to argue that determining whether land or sea is resourceful depends on the interactions between society, the environment, and the economy. This view suggests that the potential of RME, like the concept of "resourceness" itself, is not solely dictated by the environment. Instead, it arises from a blend of materials, relationships, technologies, and discussions. This study examines the perspectives of key stakeholders on the challenges and opportunities of developing regional RME initiatives, and how to draw insights that will support communities to build RME development platforms in the context of the case study (Lewis et al., 2023). Based on interviews conducted with marine ecotourism, marine restoration, and governance actors in Tutukaka, this study aims to confirm the importance of a range of core tenets of community-based development, such as community engagement and bottom-up ethics. Centered on a diving enterprise that relies on an accessible offshore marine reserve and with growing interest in restorative initiatives, Tutukaka is a potentially revealing case study of the challenges and opportunities of restorative tourism. In this way, this study brings core lessons of the place-based development literature to the challenges of ecological restoration.

Methods

Research design and data collection

Data were collected using semi-structured interviews where questions were organized thematically but maintained flexible to allow the conversation to flow naturally. The questions in the interviews were inspired by studies outlining the engagement and development of participatory marine research, especially dive tourism (see Lucrezi, 2021). The interview questions were assessed and approved by the University of Auckland ethics committee. Participants were recruited using both direct recruitment and snowball sampling. Potential first participants were identified as local community members involved in the tourism sector and/or conservation and restoration work in the area (Table 1). The research team approached potential participants by email to introduce the research and to ask for assistance in identifying potential participants. Local community members interviewed included marine ecotourism operators, local environmental/coastal care groups, and local authorities. Interviews took place in person, except for one interview held on Zoom according to the participant's preference, following guidelines for Zoom interviews recommended by the University of Auckland ethics committee. Data collection took place in February and March 2022. The researcher conducted the interviews in English after the participants had read the participant information sheet and signed the informed consent letter, permitting audio to be recorded. The interviews ranged from 60 to 120 min, depending on how long the participants wished to talk. Interview recordings were complemented by hand-written notes taken during the interview.

Stakeholders' profile and their involvement with marine ecotourism and restoration

A total of eight interviewees participated in the study, representing seven different stakeholders (Table 1). They include:

- Four ecotourism operators (a dive operator, a fishing charter, a surf school and shop, and a kayak tour operator).
- Two members of groups involved in restoration or coastal care in the area (an environmental consultancy and a community coastal care trust).
- One official from a local authority.

The interviewees represent a mix of stakeholders involved in marine ecotourism, restoration, or their governance on the Tutukaka Coast, including four marine ecotourism operators, three of which are based in Tutukaka, and one based in Whangarei but organizing tours in the Tutukaka area. Although the marine ecotourism landscape is dynamic and changing, the Sustainable Seas National Science Challenge published a map of coastal and marine ecotourism operators in New Zealand in November 2021 (Sustainable Seas National Science Challenge, 2021) and, according to this tool, three ecotourism operators were present in Tutukaka in late 2021, although some of the operators listed on the map did not exist after the Covid-19 pandemic. In this changing scenario, this survey also included operators not listed on this map. According to our online search and to the information provided by the study participants, this study therefore involved all ecotourism operators present in Tutukaka in early 2022.

Participants were six males and two females. They were aged between mid-20s and early-70s. One person was interviewed for each enterprise/group, except for the surf school and shop where a paired interview was held, as the school manager was not present for the whole length of the interview, while the employee was. Each participant was asked questions about the nature of their work with respect to marine ecotourism development in the area, their involvement in the community, and their perspectives on the relationship between tourism and the local coastal and marine environment. The sample is small but captures the key voices in the village of Tutukaka where there are a limited number of ecotourism and restoration stakeholders. While a broader range of voices would have been likely to surface a greater diversity of perspectives on community aspirations and the success or otherwise of restorative tourism in the area, the primary aim of the study was to lay bare the nature of the dive tourism experiment in the region and those factors that have facilitated or hindered its development.

One significant voice missing from the study, however, was that of local iwi Ngātiwai. While we endeavored to engage with Ngātiwai, we were unable to secure an interview with the iwi representative. Local iwi hold what is known as mana whenua, or

TABLE 1 Codes mentioned by respondents and grouped under the four themes.

Codes	Dive operator	Fishing charter operator	Surf school and shop (1 and 2)	Kayak operator	Coastal care group	Environmental consultancy	Local authority
1. State and change of the marine environment							
Overextraction on a local and national scale	✓	✓	✓	✓	✓	✓	✓
Sediment run-off	✓	✗	✗	✓	✓	✓	✓
Poor environmental management in the marine/coastal space	✓	✓	✗	✓	✗	✗	✓
Cumulative impacts	✓	✗	✓	✓	✓	✓	✓
Ocean resources depletion	✓	✓	✓	✓	✓	✓	✓
Shifting baseline	✓	✗	✗	✗	✓	✓	✗
Overcrowding, urban development, bad kind of tourism	✗	✓	✓	✗	✗	✓	✗
2. Restoration initiatives, duality challenges, and impact							
Bottom-up change to restore marine environments	✗	✓	✓	✓	✓	✓	✓
Top-down change to restore marine environments	✓	✓	✗	✓	✗	✓	✗
Authorities buy-in	✓	✓	✗	✓	✗	✓	✗
Community buy-in	✗	✓	✓	✓	✓	✓	✓
Challenge of consensus for restoration priorities	✓	✓	✗	✓	✓	✓	✓
3. Marine ecotourism/RME and its conditions and benefits							
Long-term vision	✓	✓	✓	✓	✓	✓	✓
Money flow	✓	✓	✓	✓	✗	✓	✓
Human wellbeing and health linked to environmental health	✓	✗	✓	✓	✓	✗	✓
4. Opportunities for RME development							
Making places special	✓	✓	✓	✓	✓	✓	✓
Generate connection with the place/ocean through hands-on experiences	✓	✓	✓	✓	✓	✓	✓
Making people feel responsible for the place	✓	✓	✓	✓	✓	✓	✓
Passion as a driver	✓	✓	✓	✓	✓	✓	✓

Ecotourism operators are indicated in blue, restoration stakeholders in green, and local authorities in orange. The symbols show whether each code was mentioned or not (✓ = mentioned, ✗ = not mentioned).

traditional decision-making and management rights in relation to allocation and use of resources. In contemporary New Zealand, the principles of Te Tiriti o Waitangi (Treaty of Waitangi: the partnership between Māori and the Crown upon which the New Zealand nation was founded) are increasingly embedded in governance and resource management arrangements. This means that Māori exercising mana whenua have both traditional and statutory environmental management rights, responsibilities, and opportunities to exercise these rights through planning and consenting processes (McAllister et al., 2023). In practice, they bring specific cultural perspectives and Indigenous ecological knowledge to envisioning local futures and to decision-making processes (Le Heron et al., 2019). Restoration tourism initiatives have little option but to engage with local iwi and their participation is crucial to the success of restorative tourism. In this study, we endeavor to capture the voice of mana whenua from secondary sources (the reports of other interviewees) and a reading of the wider Māori resource management and tourism literatures (e.g., Mika and Reid, 2019; Becken and Kaur, 2021; Carr, 2021; Mika and Scheyvens, 2022). While far from ideal, this does allow us

to recognize and incorporate the significance of Māori rights and interests and the potential of traditional forms of environmental management as a basis for local decision-making that supports restorative tourism.

Data analysis

The interviews were transcribed verbatim with the support of Descript software and exported to Microsoft Word. The questions eliciting respondents' narratives were targeted, with responses analyzed using *in vivo* open coding (Hay, 2000) with the support of NVivo software. The main topics explored during the interviews (hereafter themes) were established a priori, while the main concepts that emerged from analysis (hereafter codes) were deducted and grouped under a specific theme. The technique used to identify codes involves meaningful units of text being extracted, assigned a code, kept in a master list, and reapplied to similar segments of text. Participants were asked about their knowledge and perspective on the following themes: state and change of the marine environment; restoration initiatives, their challenges and impact; marine ecotourism/RME and its conditions and benefits; and opportunities for RME development. A total of 20 codes were extracted across all interviews and grouped under the four themes as illustrated in Table 1. The codes represent the concepts respondents emphasized. It is important to note that when a participant did not explicitly mention a particular code, it did not necessarily imply disagreement. Different stakeholders may focus on concerns that are more closely aligned with their interests or the habitats with which they are primarily engaged.

Results

In general, the results of this study indicate a positive stakeholders' attitude toward the synergistic interaction of ecological restoration and marine ecotourism. Throughout the four themes, the idea of a strong connection between coastal environments and the local community, as well as a disconnect between national management and the local environmental state and change, consistently emerged. By paying particular attention to practical aspects of RME, the study points to two core strategies that have a particular significance for its development: striking a balance between the preservation and restoration of marine environments and social-economic gain, and a focus on the specialness of place.

State and change of the marine environment

Participants demonstrated a shared understanding of the multiple impacts and challenges facing marine habitats, with a particular emphasis on overextraction, ocean resource depletion, and the negative effects of mass tourism. Most of the respondents link environmental impacts to human activities or lack of action, when talking about environmental management (Table 1).

Overextraction and ocean resource depletion emerged as significant concerns expressed by all stakeholders. The fishing charter operator, for example, expressed his concern about the lack of quota and size limits on reef fish according to national regulations. The dive operator elaborated on the lack of permits and zonation:

> *"It's just extraction, it's what we're all about. [...] We don't have any zonation; we don't have any regulation. Boats are not being identified. People don't need a license to go fishing. It's open slaughter. Off you go."*

Respondents were also concerned about sediment run-off. This was a major concern for the kayak operator, as he works in estuaries and harbors where the sedimentation impacts are particularly evident.

Respondents also questioned the effectiveness of environmental management in the marine and coastal space, singling out a lack of action and coordination between local community and decision-makers or policymakers. The dive operator was particularly worried about the lack of precautionary approach and tackled the heart of the issue:

> *"But instead of saying, we need more research in that before we do it, actually do significant protection and restorative work in those areas with the aim to ensure that the ocean can actually breathe again. So, we all can."*

In his view, the issue is one of identifying and applying "the right tools" rather than endless debates about rights. Others made comments that echoed these concerns, while the coastal care group representative insisted that a more appropriate management approach would see central government regulation as something that follows local action.

Respondents expressed concerns about ocean resource depletion in general and linked this to different and multiple human impacts. While not all used the term "cumulative impacts," all recognized the presence of multiple and connected impacts from social practice on coastal ecosystems. Again, the dive operator was the most explicit, arguing that every human action has big impacts on the ocean. The fishing charter operator, for example, was particularly concerned about fish and kelp depletion. The local authority representative stated that mitigating cumulative effects from an environmental management perspective is particularly challenging. Advocates of RME often point to the potential value of tourists monitoring environmental conditions.

Less than half of the stakeholders mentioned the idea of shifting baselines as reason for concern, focusing on human perception of the changing marine environment and the consequences that this perception can have on the marine habitat itself. They also talked about how visiting marine reserves can help to mitigate the shifting baseline problem.

Finally, some tourism operators discussed the increasing tourism flow in Tutukaka and the consequences this has had on urban development and also on the type of tourist. Some ecotourism operators, and the surf shop employee in particular, were particularly concerned about a form of mass tourism driven by destination exposure on social media. The fishing charter operator,

for example, explained how the social media exposure of fishing grounds combined with new fishing technologies was impacting them negatively, especially without any mediation through local and ecological knowledge:

> *"And more and more recreational people come to these areas because of social media. Now people get to see all these photos and they gravitate to where these activities are happening. And that has influenced it hugely. And I see the increase multiplying the pressure on these areas where these fish are, because it is so well-known now [...]. The local elders, they know where these fish go, their annual migratory patterns and stuff. It's no surprise, but now everybody knows, people who don't have much of an interest in it, but they see it and go, "Hey, look at this, this is where they go." And they go and replicate what they see on social media."*

Restoration initiatives, duality challenges and impact

The participants made specific considerations and recommendations about the possibility of restoring their local coastal and marine environment and the challenges they face to achieve restorative outcomes, as well as the impact of restorative actions. Most of the discussion revolved around the dualism or synergy between the local community and decision-makers (Table 1). A key challenge identified by stakeholders was the lack of consensus in decision-making processes. In particular, there was disagreement regarding whether everyone's opinion should have weight in making environmental management decisions.

Most stakeholders argued that the change required to make restoration happen needs to occur at a local scale and requires a bottom-up push from local communities. The local authority representative commented on the local nature of coastal care and restoration, highlighting that ineffective management is often caused by a disconnect between local realities and values and national policymakers. The environmental consultant argued that, for bottom-up change to work, what is needed is individuals with strong motivation, using an example:

> *"Then I think that is achievable, and it does have a feedback loop into the community in terms of the potential for ecotourism to be properly based in a non-consumptive way. But again, you need the opportunity, you need people, a lot of "Jeroens," people with a bit of vision and who are prepared to take risks to explore and promote it."*

On the other hand, a few respondents argued that the enaction of marine protection and restoration requires top-down support from decision-makers and legislators. The dive operator stood out as someone who advocates for brave political decisions and top-down change in restoration decision-making. For him this means the kind of intervention in support of local initiatives that led to the establishment of the no-take Poor Knights Islands marine reserve in the first instance. He explained that decisive intervention was not only consistent with bottom-up driven change but was often necessary to facilitate it. The kayak operator pointed to a similar argument when explaining that the local community can and is taking the responsibility to look after their environment, but needs tools, coordination, and budget from professional local managers if their restorative actions are to be effective.

The stakeholders talked at length about the importance of collaboration between authorities and community. The challenge, they argued, was to bring top-down change perspectives into relation with bottom-up approaches such that the practicalities of change and the roles required of all stakeholders involved in the process could be aligned with effective restoration and protection of the marine environment. For example, the fishing charter operator, who advocated for both authority and community buy-in, explained why buy-in from decision-makers is essential to manage fish stock depletion. He argued that little could be achieved without changes to the catch limits and fishing quota system, which would require intervention from the controlling government ministry (the Ministry for Primary Industries). Yet the coastal care group representative advocated for community-led restoration initiatives based on citizen science, which might galvanize top-down change and support its application. Respondents emphasized the importance of overcoming extant disconnections between national decision-makers and local realities on the one hand and local concerns and regulatory possibilities on the other hand. Local community input, roles and responsibilities were argued to be crucial in the restorative process. As the surf shop employee summarized:

> *"Not everybody cares. It is the local community that really cares."*

Finally, whilst collaboration for mutual gain was a significant theme for all respondents, the discussion would often come back to the challenge of consensus in establishing restoration priorities, for both active and passive interventions. The main disagreement was whether or not it is paramount to obtain the consensus of every segment of the community and stakeholders before enacting restorative interventions. Some of the respondents argued that everyone should have a say and should be allowed to understand the benefits of coastal restoration before it is enacted. For example, the local authority representative stated that everyone should be given time and opportunity to understand the reasons and benefits of restoration initiatives and that this represents both the biggest challenge and opportunity. Other participants, however, suggested that a consensus does not need to be obtained beforehand.

Marine ecotourism/RME and its conditions and benefits

Stakeholders in Tutukaka recognized the interdependence and mutual relationship between a healthy environment and the sustainability of both the tourism industry and the local community (Table 1).

While respondents talked of the links between environmental health and human health and wellbeing and the role that marine ecotourism can play in securing them, they focused attention on two elements in the narrative of mutual dependence.

Stakeholders described the actions they were taking to ensure the long-term sustainable development of their local area and of their operations, even if it meant sacrificing short-term business gains. Those interviewed began from the position that ensuring a healthy marine environment means ensuring business in the future. The fishing charter operator, for example, described how he lost some business as he set stricter limits than legal ones on the allowable catch of reef fish on his charter:

> *"And I was like, 20 fish is still far too generous. And for them to be horrified and react the way they have to the limits I have set. They said: "This is not government limits." I said, no, these are the limits I've made. And they said, "Oh no, sorry, not enough for me and my people. They're not worth it for us to come anymore." I have lost work. And it is hard for me because I need the work, I picked a real tough time to start. But if I'm going to do it in my home waters, I need to be comfortable with how I'm doing it."*

For some stakeholders, restorative actions included actively supporting a community network and a sense of connection with people and the environment, which built up toward shared environmental values.

The participants also focused their discussion on ecosystem services and the economic revenue that depends on them. Most respondents believed that there is a reciprocity between healthy marine habitats and flourishing ecotourism businesses and resident communities. Only the coastal care group representative argued that economic activity is consumerist and not compatible with ecosystem health. The environmental consultant and the dive operator highlighted the reciprocity between legal coastal protection and a flourishing tourism industry. As the dive operator pointed out:

> *"If you have a marine reserve, you can build a business on that because that's perpetuity. Things may change a little bit, but you can make an investment on the basis that it has a level of protection. If it doesn't have protection, like for example, the Mokohinaus, you'd be silly to set up a tourism business."*

Opportunities for RME development

All participants talked about the possibility for RME to generate a connection with the ocean through hands-on experiences and understanding marine environments to foster a deeper connection and appreciation. The discussion highlighted a shared view of opportunities for restorative development, which focused on four elements (Table 1).

The first was a focus on their local environment as "special" and the shared economic, social, and environmental values of this specialness. The idea of "specialness" was a repeated trope across the interviews, even though respondents were not directly asked about it. For example, the coastal care group representative argued that creating more "special" places would help to distribute tourism pressure among various places while also providing more opportunities for deep environmental experiences. The dive operator detailed the logistical advantages that ecotourism operations could gain from making more places ecologically special. The local consultant went further to elaborate on what specialness meant in the context of RME:

> *"We can say the same thing now that there are more and more areas that you could set aside so that when people go to them, they see them as something a little bit special. They're not just another beach, but there is a whole section of beach here that you can't fish off it or, whatever it might be, some aspect to it that allows them to recognize it as special."*

The second element revolved around the idea that marine ecotourism holds a huge educational potential as some operators can offer hands-on experiences that educate people about the ocean and generate a sense of connection with the marine environment. The kayak operator explained that experiencing and knowing a place motivates to protect it, while the fishing charter operator elaborated on the importance of the Poor Knights Islands in providing this type of experience. This educational dimension of the opportunity presented by RME was closely related to the third element of shared and personal responsibility.

The respondents argued that RME both relied upon and might help to cultivate a collective and individual sense of place and responsibilities for stewarding place. The surf shop employee, for example, stated that shared values and ideas within the local community can lead to environmental consciousness. The coastal care group representative believed that making people feel responsible for the marine environment is a shared responsibility among tourism operators, local communities, and people engaging in the activity.

Finally, passion for the ocean was identified by all participants as a driving force for their own commitments to place and the environment. Respondents emphasized the prominent role of passion to create a path that leads to certain professions and generates opportunities to inform more people about the marine environment. In different ways, each of the respondents saw cultivating a passion for the ocean among others as a way of stimulating interest in and commitments to RME. The coastal group representative, who had a diverse career centered around the ocean, explained the reason behind his path:

> *"Just because I wanted to be a crewman on the Calypso, and I was a couple of generations too late. For me particularly, once I started diving when I was fifteen, that's all I wanted to do for a living."*

Discussion

The findings from this study offer insights into the challenges and opportunities for RME development in Tutukaka, New Zealand. These insights can inform the planning and implementation of RME initiatives at a local scale, fostering bottom-up processes and supporting the achievements of both ecological restoration goals and sustainable tourism practices (Figure 1). They can be summarized as three lessons based on our case study.

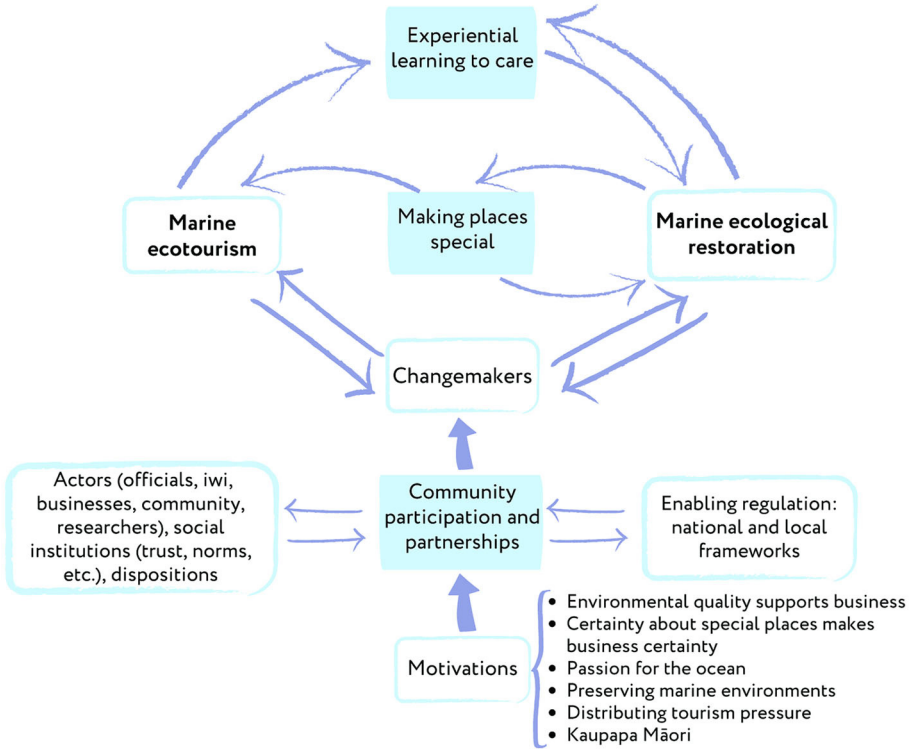

FIGURE 1
Map of transformative relations among marine ecotourism and ecological restoration through experiential learning and specialness of places, fueled by community's motivations and meaningful participation. The blue-filled boxes highlight the three main findings of the study, as presented in the discussion.

Meaningful participation of local communities in restoration

Stakeholders showed a general concern for the marine environment. This concern transcended the narrow stakes of their roles and personal investments, pointing to a complex and interrelated approach to their practices (see Bellato et al., 2022) and to a community interest and concern that might serve as a driving force for restorative actions. For example, the kayak operator was concerned about the state of the estuaries where most of his operations take place, and as a consequence, he focused on riparian planting and farm fencing when talking about restoration. The dive operator concentrated much of his attention on the depletion of ocean resources and loss of biodiversity. While the deterioration of the aesthetic qualities of underwater scenery impacted his business, his restorative focus was on a much more general commitment to marine environments. Marine reserves were a major focus of his comments, but out of a commitment to an extensive protection of the coast rather than to support his business. He made his business from the marine reserve, but his business was an outcome of its creation rather than an instrument to support the business. Both the kayak and dive operators saw community engagement as crucial to the future of the environments on which their businesses relied, but that such participation had to be cultivated.

All respondents saw consensus in decision-making processes as important in establishing restorative actions, but something that had to be worked at. This highlights the complexity of balancing various perspectives and interests in the restoration process, consistent with other findings in restoration literature (Cinner et al., 2014; Abelson et al., 2016). This involves building community engagement locally as well as productive connections with national decision-makers. Most respondents believed in local management to enact change and emphasized a bottom-up approach yet recognized the importance of national-level regulation and its potential to enact change in certain contexts. The dive operator, for example, argued that while engagement is crucial, brave political decisions at both local and national scales are required to enact change. Here his own role in establishing the no-take marine reserve in the 1990s is a case in point. In rural communities, such as Tutukaka, the theme of self-motivated change and careful negotiation of local tensions between local realities and national decision-making are consistent with the literature (e.g., Haden et al., 2012).

It is important to note that, while this case puts emphasis on local management and bottom-up change, it does not exclude the involvement of authorities and decision-makers, but rather calls for coordination and collaboration (Sivaramakrishnan, 2000). Local communities may require resources and opportunities to understand the benefits of restoration, overcome local inertias and conflicts of interest, and enact change. Financial resources can be crucial (Edwards et al., 2013; Viana et al., 2017). For example, in this study, the kayak operator talked about community efforts which he has been part of, including riparian planting and pest control, but he emphasized that the continuation of these endeavors over

the long-term relies on securing resources from the local council. This is also exemplified by the creation of the Poor Knights Islands marine reserve, which required a decision from authorities but was driven by community members who recognized the benefits and value of pristine marine ecosystems. This finding is consistent with the literature, which emphasizes the significance of collaborative and participatory approaches in coastal and marine restoration (e.g., Masud et al., 2017; Pascual-Fernández et al., 2018).

The shared vision and commitment of stakeholders in Tutukaka to protect and restore their marine environment, coupled with the recognition of the benefits of RME discussed below, offer opportunities for collaboration between marine restoration and ecotourism sectors. However, two tensions are always at play (see Figure 1). First, restorative actions still need to be consolidated through legal protection and the effects of local actions need to be measured and monitored through scientific and social-economic research (Le Heron et al., 2018; Howlett et al., 2022). Second, community consensus and a shared community commitment and position cannot be taken for granted. Even within the small sample of stakeholders more or less committed to RME and ecological restoration of marine habitats in this study, there are differences of viewpoint and priority about marine ecological restoration and how to achieve it. A wider survey would surface more significant differences along multiple axes of self-interest and ideology. Our sample cannot be taken as representative and there are many more stakeholders to consider, but it does point to possibilities of collective action and to the processes that will be required to achieve it. As others maintain, creative participatory processes will be required (Le Heron et al., 2019). This is consistent with previous studies in restoration literature (Wesselink et al., 2011).

Our study also provides a sense of how this might be achieved through RME as a way of fortifying community partnerships and building shared interests within the scope of our case study. Figure 1 models a bottom-up RME development process centered on local resourcefulness. Rather than either explicitly or implicitly centering policy as the driver for change, the model centers a process of community participation in resource use and management. The accent is on an effective community that brings together decision-making actors, canvasses and coordinates different motivations toward RME, identifying shared views and interests, resolving conflicts, and supporting/resourcing changemakers to launch RME initiatives that build on local resources and seek to create and enhance the specialness of place. The bio- and geo-physical specialness of place is only materialized in the form of RME by community-based resources, energies, and capabilities brought to specific initiatives by specific actors.

Generating connection to the ocean through hands-on experiences: what can restoration offer to ecotourism?

Respondents shared the view that restorative initiatives can enhance the ecological resilience of marine habitats, while ecotourism activities can contribute to conservation awareness, engage visitors and residents in active restoration, generate economic benefits, and foster a sense of place attachment among visitors. In particular, they highlighted the potential for RME to generate a connection with the ocean through hands-on experiences. For example, both the dive and fishing charter operator provided visitors the opportunity to experience how the ocean could look through showing them the Poor Knights marine reserve. They suggested that the experience commonly ignited a passion for the ocean among visitors, one that is able to bind residents and visitors into a commitment to feeling responsible for the place (Kibler et al., 2018). Most of the stakeholders interviewed told the story of how they chose a career that allowed them to visit the ocean daily and pointed to RME as a potential platform for inspiring this passion in a new generation of people.

The importance of experiential learning and emotional connections in promoting pro-environmental behavior is well rehearsed in ecotourism literature (e.g., Kollmuss and Agyeman, 2002; Lucrezi and du Plessis, 2022), as well as in citizen science literature (e.g., Cerrano et al., 2017; Freiwald et al., 2018). Our study suggests that involving both local communities and visitors in either active or passive restoration may enrich learning experiences and emotional connections, while fostering environmental health. This approach has the potential to bind people into an environmental and community wellbeing through restoration. Interview participants suggested, however, that this requires an on-going investment of effort and resources, particularly efforts to strengthen community and cross-sector partnerships and to foster and express the "specialness of places." The crucial question is whether RME is an effective way to achieve these goals within our case study.

Making places "special" through RME

One possible avenue for restoration to effectively contribute to marine ecotourism is through the way it can "make places special." In our case, RME, with its focus on restorative practices and sustainable tourism, has significant potential to operate in the space of making special places by contributing to the preservation and enhancement of unique and valuable environments. That this potential was voiced by all stakeholders without prompting is perhaps the most interesting finding of our study. The respondents each pointed in different ways to how the "specialness" of place connected ecotourism with ecological restoration, and how that specialness was actively made. For example, both the restoration stakeholders (the coastal care group representative and the environmental consultant) argued that special places such as marine reserves multiplied opportunities to create deep environmental experiences. Further, they suggested that expressing the specialness of multiple places had the potential to take some tourism pressure off the few places that are already seen as special, such as marine reserves. The dive and kayak operators highlighted the business dimension of "specialness of places," emphasizing the diversity of special places in a region would enable them to diversify their own activities, de-risk weather related disruptions, and extend the tourism season. A more diverse place centered RME would allow tourists alternatives when fishing options or diving in the marine reserve were curtailed by bad weather.

The respondents' concern for their local environment reflects their desire to preserve and enhance the uniqueness and specialness of Tutukaka, advocate for a tourism approach that is respectful of the environment, educate visitors about the local community's care for the place, and contribute positively to the local economy. It binds restorative action to economic benefit and community development. This raises intriguing questions about what factors contribute to making a place special. Exploring these factors can shed light on the opportunities that making a place special offer for restoration and ecotourism. This includes RME development as a potential basis for local or regional blue economy development, a concept that may be relevant in other contexts but requires case-specific exploration. In the context of the Poor Knights Islands marine reserve, the point seems self-evident—the marine reserve makes the area special. However, this disguises the fact that it is the legal protection that has in large part created that specialness, and all the work, community institutions, resources, and personal energy and commitments that lie behind it. The Tutukaka case is a compelling example of both the potential of the specialness of place as a basis for RME and of the value of resourcefulness (Li, 2014) as a way of grasping what is at stake and what is going on. It is the strength of collective commitment as much as the specialness of the marine environment itself that is on show in the Tutukaka case.

Significantly, this resourcefulness must be built and must be safeguarded. As all the respondents emphasized, the current management capacity may not be sufficient to keep the place "special" through monitoring and restorative interventions alone. A lack of resources and unclear management boundaries in the marine space mean that any success in securing the conditions for RME is temporary and cannot be taken for granted. Institutions to secure collaboration must be continually safeguarded and reworked to meet changing conditions. Restorative interventions can also be achieved through means that are more easily accessible to the local community, but local community action needs to be stimulated and local participation in decision-making needs to be nurtured. Here, Te Tiriti o Waitangi provides for helpful community-scale interventions from Indigenous groups. While we were unable to canvas Māori views at either the iwi (formal tribal) or hapu (sub-tribal) scale, Māori have increasingly used rāhui (cultural restrictions placed on resource use or area access by the traditional environmental guardians, Bambridge, 2016) and other forms of restriction or cultural designation to impose restorative conditions in an area. A rāhui, for example, has been placed on the Mermaid Pools, natural tidal rock pools close to Tutukaka. Supported by the New Zealand Department of Conservation who subsequently closed off the unofficial walkway that led to the pools, the rāhui represents another form of resourcefulness for expressing and enacting the specialness of place in an RME context. Another example was provided by the community-based coastal monitoring protocols adopted by the coastal care group—a community-driven citizen science initiative that connects people with the specialness of their own marine environment. In the words of the coastal care respondent in our study, such initiatives "*provide the community themselves with feedback that they can then use to make decisions.*"

These examples confirm the role of partnerships and the importance of self-motivation and local management to implement restorative actions, consistent with previous studies (Haden et al., 2012; Hammerton et al., 2012). Maybe at the core of possible pathways for RME development lies exactly this: the capacity to "make places special" through the preservation and enhancement of unique and valuable environments. Restoration's contribution to ecotourism lies in its ability to create these unique places. Simultaneously, when ecotourism is effectively managed, it offers a platform for diversifying restoration efforts (Blangy and Mehta, 2006). In practice however, RME initiative must avoid the trap of reducing sustainable practices and restorative actions to greenwashing with promises and discursive strategies (Self et al., 2010). Commodification is considered one of the risks of conservation tourism and voluntourism (Coren and Gray, 2012). Once more, community partnerships and initiatives co-developed with scientific and other experts have a role to play here in safeguarding a restorative agenda. The challenge is to ensure that decision-makers and public address the questions that are most important to restoration and to the local community of a place so that they can make decisions that enhance the specialness of that place (Ward-Paige et al., 2020).

Significantly, Māori are pivotal social and political actors in coastal communities in New Zealand. Recognizing and incorporating Māori rights and interests, integrating Māori cultural values and customs, and building on the holistic conceptions of both the social and natural world and commitments to social and ecological wellbeing intrinsic to Māori worldviews is crucial to social-ecological futures (Becken and Kaur, 2021; Carr, 2021). Te Ao Māori (Māori world views) and mātauranga Māori (Māori knowledge) are pivotal dimensions of the social-ecological resourcefulness of New Zealand coastal communities and the potential of RME (Becken and Kaur, 2021). With rights, interests, and mātauranga Māori all anchored at the local level, bottom-up driven RME is in many ways not just a potential way forward, but the only way forward—albeit one that will be challenging (Mika and Scheyvens, 2022). While any future research and any effort to implement RME initiatives will need to respond to these challenges by engaging directly with Māori in design and execution, this study demonstrates support for RME among a group of central actors in the nexus of coastal tourism and conservation in Tutukaka.

The marine reserve lies at the heart of RME potential in Tutukaka. The participants suggest that, in their experience, they have found that the potential of RME might be best realized by focusing attention on learning from what has worked historically, taking an experimental and practice-based approach to encourage new initiatives and cultivating personal and social responsibility for the environment. They point to place-based promotional strategies and the trope of the "special" place as a way of mobilizing these strategies and attracting and engaging both visitors and locals in developing RME practices. They add that community support is critical in efforts to develop new initiatives, as is focusing attention on integrating restoration and ecotourism practices. The themes of community-based development and integrated approaches are well-rehearsed in the literature (e.g., Masud et al., 2017; Le Heron et al., 2019). Perhaps the most interesting finding from this study is the emphasis placed by most respondents on the "specialness of place" and the currency of authenticity. In this sense, our study points firmly to the significance of place building, cultivating the special attributes of place, and constructing compelling narratives.

These actions not only support community development, but also serve as essential elements for the success of ecological restoration and RME enterprises.

Data availability statement

The datasets presented in this article are not readily available because raw data of this study are transcripts of participants' interviews. According to the University of Auckland Human Participants Ethics Committee, which approved this study, only the authors included in the original ethics application are allowed to access raw data, thus including interviews recordings and transcripts. Requests to access the datasets should be directed at: EF, efer020@aucklanduni.ac.nz.

Ethics statement

The studies involving humans were approved by the University of Auckland Human Participants Ethics Committee. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

EF: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing—original draft, Writing—review & editing. NL: Conceptualization, Funding acquisition, Methodology, Resources, Supervision, Validation, Visualization, Writing—review & editing. ST: Conceptualization, Funding acquisition, Resources, Supervision, Validation, Writing—review & editing. SL: Methodology, Supervision, Validation, Visualization, Writing—review & editing. JH: Conceptualization, Investigation, Resources, Supervision, Validation, Visualization, Writing—review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

References

Abelson, A., Halpern, B. S., Reed, D. C., Orth, R. J., Kendrick, G. A., Beck, M. W., et al. (2016). Upgrading marine ecosystem restoration using ecological-social concepts. *Bioscience* 66, 156–163. doi: 10.1093/biosci/biv171

Abelson, A., Reed, D. C., Edgar, G. J., Smith, C. S., Kendrick, G. A., Orth, R. J., et al. (2020). Challenges for restoration of coastal marine ecosystems in the anthropocene. *Front. Mar. Sci.* 7, 544105. doi: 10.3389/fmars.2020.544105

Ayling, T., and Schiel, D. (2003). "Poor knights Islands," in The Living Reef: The Ecology of New Zealand's Rocky Reefs, eds N. Andrew, and M. Francis (Nelson: Craig Potton Publishing), 210–223.

Ballantine, B. (2014). Fifty years on: lessons from marine reserves in New Zealand and principles for a worldwide network. *Biol. Conserv.* 176, 297–307. doi: 10.1016/j.biocon.2014.01.014

Bambridge, T. (2016). The Rahui: *Legal Pluralism in Polynesian Traditional Management of Resources and Territories*. Canberra, ACT: Anu Press. doi: 10.26530/OAPEN_607554

Barford, A., and Ahmad, S. R. (2021). A call for a socially restorative circular economy: waste pickers in the recycled plastics supply chain. *Circ. Econ. Sust.* 1, 761–782. doi: 10.1007/s43615-021-00056-7

Bayraktarov, E., Saunders, M. I., Abdullah, S., Mills, M., Beher, J., Possingham, H. P., et al. (2016). The cost and feasibility of marine coastal restoration. *Ecol. Appl.* 26, 1055–1074. doi: 10.1890/15-1077

Becken, S., and Hay, J. E. (2007). Tourism and *Climate Change: Risks and Opportunities*. Bristol: Multilingual Matters. doi: 10.21832/9781845410681

Becken, S., and Kaur, J. (2021). Anchoring "tourism value" within a regenerative tourism paradigm–a government perspective. *J. Sustain. Tour.* 30, 52–68. doi: 10.1080/09669582.2021.1990305

Becken, S., and Loehr, J. (2022). Asia–Pacific tourism futures emerging from COVID-19 recovery responses and implications for sustainability. *J. Tour. Futures* 9, 35–48. doi: 10.1108/JTF-05-2021-0131

Bellato, L., Frantzeskaki, N., Fiebig, C. B., Pollock, A., Dens, E., Reed, B., et al. (2022). Transformative roles in tourism: adopting living systems' thinking for regenerative futures. *J. Tour. Futures* 8, 312–329. doi: 10.1108/JTF-11-2021-0256

Bellato, L., Frantzeskaki, N., and Nygaard, C. A. (2023). Regenerative tourism: a conceptual framework leveraging theory and practice. *Tour. Geogr* 25, 1026–1046. doi: 10.1080/14616688.2022.2044376

Blangy, S., and Mehta, H. (2006). Ecotourism and ecological restoration. *J. Nat. Conserv.* 14, 233–236. doi: 10.1016/j.jnc.2006.05.009

Borja, A. (2014). Grand challenges in marine ecosystems ecology. *Front. Mar. Sci.* 1, 1. doi: 10.3389/fmars.2014.00001

Carr, A. (2021). "COVID-19, indigenous peoples and tourism: a view from New Zealand," in *Global Tourism and COVID-19*, eds A. Lew, J. Cheer, P. Brouder, S. Teoh, H. Balslev Clausen, M. Hall, M. Haywood, F. Higgins-Desbiolles, D. Lapointe, M. Mostafanezhad, J. Mei Pung, and N. Salazar (London: Routledge), 37–48.

Cerrano, C., Milanese, M., and Ponti, M. (2017). Diving for science - science for diving: volunteer scuba divers support science and conservation in the Mediterranean Sea. *Aquat. Conserv. Mar. Freshw. Ecosyst.* 27, 303–323. doi: 10.1002/aqc.2663

Cinner, J. E., Daw, T., Huchery, C., Thoya, P., Wamukota, A., Cedras, M., et al. (2014). Winners and losers in marine conservation: fishers' displacement and livelihood benefits from marine reserves. *Soc. Nat. Resour.* 27, 994–1005. doi: 10.1080/08941920.2014.918229

Coren, N., and Gray, T. (2012). Commodification of volunteer tourism: a comparative study of volunteer tourists in Vietnam and in Thailand. *Int. J. Tour. Res.* 14, 222–234. doi: 10.1002/jtr.848

Danovaro, R., Aronson, J., Cimino, R., Gambi, C., Snelgrove, P. V. R., Van Dover, C., et al. (2021). Marine ecosystem restoration in a changing ocean. *Restor. Ecol.* 29, e13432. doi: 10.1111/rec.13432

Dowell, A., Lewis, N., and Jones, R. (2023). Experimentation as infrastructure: enacting transitions differently through diverse economy-environment assemblages in Aotearoa New Zealand. *Geogr. Res.* 61, 362–376. doi: 10.1111/1745-5871.12590

Edney, G. (2004). *Visitor Numbers to the Poor Knights Marine Reserve 2003/2004*. Unpublished Report to the New Zealand Department of Conservation, Whangarei Area Office.

Edwards, P. E. T., Sutton-Grier, A. E., and Coyle, G. E. (2013). Investing in nature: Restoring coastal habitat blue infrastructure and green job creation. *Mar. Policy* 38, 65–71. doi: 10.1016/j.marpol.2012.05.020

Ellis, C. (2003). Participatory environmental research in tourism: a global view. *Tour. Recreat. Res.* 28, 45–55. doi: 10.1080/02508281.2003.11081416

Everingham, P., and Chassagne, N. (2020). Post COVID-19 ecological and social reset: moving away from capitalist growth models towards tourism as Buen Vivir. *Tour. Geogr.* 22, 555–566. doi: 10.1080/14616688.2020.1762119

Forrest, M. J., Favoretto, F., Nisa, Z. A., and Aburto-Oropeza, O. (2023). A deeper dive into the blue economy: the role of the diving sector in conservation and sustainable development goals. *Front. Mar. Sci.* 10, 1212790. doi: 10.3389/fmars.2023.1212790

Fraser, W. (1926). A brief account of the maori occupation. *N.Z. J. Sci. Technol.* 8, 8.

Freiwald, J., Meyer, R., Caselle, J. E., Blanchette, C. A., Hovel, K., Neilson, D., et al. (2018). Citizen science monitoring of marine protected areas: case studies and recommendations for integration into monitoring programs. *Mar. Ecol.* 39, e12470. doi: 10.1111/maec.12470

Gann, G. D., McDonald, T., Walder, B., Aronson, J., Nelson, C. R., Jonson, J., et al. (2019). International principles and standards for the practice of ecological restoration. *Restor. Ecol.* 27, S1–S46. doi: 10.1111/rec.13035

Garrod, B., and Wilson, J. C. (2003). Marine Ecotourism*: Issues and Experiences*. Bristol: Channel View Publications. doi: 10.21832/9781873150436

Gibson-Graham, J. K., Cameron, J., and Healy, S. (2013). Take *Back* the *Economy: An Ethical Guide for Transforming Our Communities*. Minneapolis, MN: University of Minnesota Press. doi: 10.5749/minnesota/9780816676064.001.0001

Gössling, S., Scott, D., and Hall, C. M. (2020). Pandemics, tourism and global change: a rapid assessment of COVID-19. *J. Sustain. Tour.* 29, 1–20. doi: 10.1080/09669582.2020.1758708

Haden, V. R., Niles, M. T., Lubell, M., Perlman, J., and Jackson, L. E. (2012). Global and local concerns: what attitudes and beliefs motivate farmers to mitigate and adapt to climate change? *PLoS ONE* 7, e0052882. doi: 10.1371/journal.pone.0052882

Hammerton, Z., Dimmock, K., Hahn, C., Dalton, S. J., and Smith, S. D. (2012). Scuba diving and marine conservation: collaboration at two Australian subtropical destinations. *Tour. Mar. Environ.* 8, 77–90. doi: 10.3727/154427312X13262430524180

Hay, I. (2000). *Qualitative Research Methods in Human Geography*. Oxford: Oxford University Press.

Hermoso, M., Narváez, S., and Thiel, M. (2021). Engaging recreational scuba divers in marine citizen science: differences according to popularity of the diving area. *Aquat. Conserv. Mar. Freshw. Ecosyst.* 31, 441–455. doi: 10.1002/aqc.3466

Hesley, D., Burdeno, D., Drury, C., Schopmeyer, S., and Lirman, D. (2017). Citizen science benefits coral reef restoration activities. *J. Nat. Conserv.* 40, 94–99. doi: 10.1016/j.jnc.2017.09.001

Howlett, L., Camp, E. F., Edmondson, J., Edmondson, J., Agius, T., Hosp, R., et al. (2022). Adoption of coral propagation and out-planting via the tourism industry to advance site stewardship on the northern Great Barrier Reef. *Ocean Coast. Manag.* 225, 106199. doi: 10.1016/j.ocecoaman.2022.106199

Hussain, A., and Haley, M. (2022). Regenerative tourism model: challenges of adapting concepts from natural science to tourism industry. *J. Sustain. Resil.* 2, 4.

Kibler, K. M., Cook, G. S., Chambers, L. G., Donnelly, M., Hawthorne, T. L., Rivera, F. I., et al. (2018). Integrating sense of place into ecosystem restoration: a novel approach to achieve synergistic social-ecological impact. *Ecol. Soc.* 23. doi: 10.5751/ES-10542-230425. [Epub ahead of print].

Kollmuss, A., and Agyeman, J. (2002). Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environ. Educ. Res.* 8, 239–260. doi: 10.1080/13504620220145401

Le Heron, E., Logie, J., Allen, W., Le Heron, R., Blackett, P., Davies, K., et al. (2019). Diversity, contestation, participation in Aotearoa New Zealand's multi-use/user marine spaces. *Mar. Policy* 106, 103536. doi: 10.1016/j.marpol.2019.103536

Le Heron, R., Blackett, P., Logie, J., Hikuroa, D., Le Heron, E., Greenaway, A., et al. (2018). "Participatory processes for implementation in Aotearoa New Zealand's multi-use/user marine spaces?: unacknowledged and unaddressed issues," in *Towards Coastal Resilience and Sustainability*, eds C. P. Heidkamp, and J? Morrissey · (London: Routledge), 111–130. doi: 10.4324/9780429463723-7

Le Heron, R., Lewis, N., Fisher, K., Thrush, S., Lundquist, C., Hewitt, J., et al. (2016). Non-sectarian scenario experiments in socio-ecological knowledge building for multi-use marine environments: Insights from New Zealand's Marine Futures project. *Mar. Policy* 67, 10–21. doi: 10.1016/j.marpol.2016.01.022

Lewis, N., Le Heron, R., Hikuroa, D., and Le Heron, E. (2023). Rent as a regional asset: rent platforms and regional development in Kaikoura, Aotearoa New Zealand. *Reg. Stud.* 57, 1–13. doi: 10.1080/00343404.2023.2179030

Li, T. M. (2014). What is land? Assembling a resource for global investment. *Trans. Inst. Br. Geogr.* 39, 589–602. doi: 10.1111/tran.12065

Loorbach, D. (2020). "Transforming climate governance? Why climate governance is failing and what to do about it," in *Transformative Climate Governance*, eds K. Hölscher, and N?. Frantzeskaki (Berlin: Springer), 431–445. doi: 10.1007/978-3-030-49040-9_13

Lucrezi, S. (2021). Characterising potential participants in kelp monitoring in the recreational diving community: a comparative study of South Africa and New Zealand. *Glob. Ecol. Conserv.* 28, e01649. doi: 10.1016/j.gecco.2021.e01649

Lucrezi, S., and du Plessis, M. J. (2022). Assessing experiences in diving recreation and their relation to proenvironmental behavior and attitude: a study of divers in South African kelp forests. *Tour. Mar. Environ.* 17, 27–48. doi: 10.3727/154427322X16475700356817

Masud, M. M., Aldakhil, A. M., Nassani, A. A., and Azam, M. N. (2017). Community-based ecotourism management for sustainable development of marine protected areas in Malaysia. *Ocean Coast. Manag.* 136, 104–112. doi: 10.1016/j.ocecoaman.2016.11.023

McAllister, T., Hikuroa, D., and Macinnis-Ng, C. (2023). Connecting science to Indigenous knowledge: kaitiakitanga, conservation, and resource management. *N. Z. J. Ecol.* 47, 3521. doi: 10.20417/nzjecol.47.3521

Mika, J. P., and Reid, J. (2019). Whai Rawa, Whai Mana, Whai Oranga: Creating a *World-Leading Indigenous Blue Economy*. Wellington: Sustainable Seas National Challege.

Mika, J. P., and Scheyvens, R. A. (2022). Te Awa Tupua: peace, justice and sustainability through Indigenous tourism. *J. Sustain. Tour.* 30, 637–657. doi: 10.1080/09669582.2021.1912056

Milne, S., Thorburn, E., Rosin, C., and Deuchar, C. (2021a). *Developing Marine Ecotourism for a Sustainable Blue Economy: A Literature Review.*

Milne, S., Thorburn, E., Trinh, T., and Dobbin, N. (2021b). *Baseline Findings – Baseline Findings – Marine and Coastal Ecotourism, National and Regional Picture*. Sustainable Seas National Challenge. Available online at: https://www.sustainableseaschallenge.co.nz/tools-and-resources/marine-ecotourism-baseline-report-1/ (accessed November 4, 2023).

Morseletto, P. (2020). Restorative and regenerative: exploring the concepts in the circular economy. *J. Ind. Ecol.* 24, 763–773. doi: 10.1111/jiec.12987

Pascual-Fernández, J. J., Raquel De la Cruz, M., Chuenpagdee, R., and Jentoft, S. (2018). Synergy as strategy: learning from La Restinga, Canary Islands. *Marit. Stud.* 17, 85–99. doi: 10.1007/s40152-018-0091-y

Raffaelli, D., Solan, M., and Webb, T. J. (2005). Do marine and terrestrial ecologists do it differently? *Mar. Ecol. Prog. Ser.* 304, 271–307.

Riera, R., Becerro, M. A., Stuart-Smith, R. D., Delgado, J. D., and Edgar, G. J. (2014). Out of sight, out of mind: threats to the marine biodiversity of the Canary Islands (NE Atlantic Ocean). *Mar. Pollut. Bull.* 86, 9–18. doi: 10.1016/j.marpolbul.2014.07.014

Roelvink, G., Martin, K. S., and Gibson-Graham, J. K. (2015). Making *Other Worlds Possible: Performing Diverse Economies*. Minneapolis, MN: University of Minnesota Press. doi: 10.5749/j.ctt130jtq1

Schaffer, V., and Tham, A. (2020). Engaging tourists as citizen scientists in marine tourism. *Tour. Rev. AIEST – Int. Assoc. Sci. Experts Tour.* 75, 333–346. doi: 10.1108/TR-10-2018-0151

Schiel, D. R., Ayling, T., Kingsford, M. J., Battershill, C. N., Choat, J. H., Andrew, N. L., et al. (2018). Change in the rocky reef fish fauna of the iconic Poor Knights Islands

Marine Reserve in north-eastern New Zealand over 4 decades. *Mar. Freshw. Res.* 69, 1496–1507. doi: 10.1071/MF18037

Self, R. M., Self, D. R., and Bell-Haynes, J. (2010). Marketing tourism in the Galapagos Islands: ecotourism or greenwashing? *Int. Bus. Econ. Res. J.* 9, 111–125. doi: 10.19030/iber.v9i6.590

Sim-Smith, C., and Kelly, M. (2009). "A literature review on the Poor Knights Islands Marine Reserve," in *Marine Parks and Reserves - New Zealand* (Department of Conservation). Available online at: https://www.doc.govt.nz/nature/habitats/marine/type-1-marine-protected-areas-marine-reserves/marine-reserve-monitoring/ (accessed October 21, 2023).

Sivaramakrishnan, K. (2000). Crafting the public sphere in the forests of West Bengal: democracy, development, and political action. *Am. Ethnol.* 27, 431–461. doi: 10.1525/ae.2000.27.2.431

Statistics New Zealand (2022). Available online at: https://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7979 (accessed October 27, 2023).

Sustainable Seas National Science Challenge (2021). Available online at: https://www.sustainableseaschallenge.co.nz/tools-and-resources/map-nz-marine-ecotourism-operators/ (accessed October 26, 2023).

Taylor, N., and Buckenham, B. (2003). "Social impacts of marine reserves in New Zealand," in *Science for Conservation* (Department of Conservation New Zealand). Available online at: https://www.doc.govt.nz/ (accessed August 22, 2023).

Taylor, R. B., Morrison, M. A., and Shears, N. T. (2011). Establishing baselines for recovery in a marine reserve (Poor Knights Islands, New Zealand) using local ecological knowledge. *Biol. Conserv.* 144, 3038–3046. doi: 10.1016/j.biocon.2011.09.009

Viana, D. F., Halpern, B. S., and Gaines, S. D. (2017). Accounting for tourism benefits in marine reserve design. *PloS ONE* 12, e0190187. doi: 10.1371/journal.pone.0190187

Ward-Paige, C. A., Brunnschweiler, J., and Sykes, H. (2020). (2020). Tourism-driven ocean science for sustainable use: a case study of sharks in Fiji. *bioRxiv* [preprint]. doi: 10.1101/2020.02.04.932236

Warne, K. (2006). Poor knights, rich seas. *New Zealand Geographic Issue 078*. Available online at: https://www.nzgeo.com/stories/poor-knights-rich-seas/ (accessed November 15, 2023).

Wesselink, A., Paavola, J., Fritsch, O., and Renn, O. (2011). Rationales for public participation in environmental policy and governance: practitioners' perspectives. *Environ. Plann. A Econ. Space* 43, 2688–2704. doi: 10.1068/a44161