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# Developing marine ecotourism for a sustainable blue economy: a literature review

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Report

# Report for Sustainable Seas National Science Challenge project *Developing marine ecotourism (Project code 2.4)*

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For more information on this project, visit:

[www.sustainableseaschallenge.co.nz/our-research/growing-marine-ecotourism/](http://www.sustainableseaschallenge.co.nz/our-research/growing-marine-ecotourism/)



## About Sustainable Seas Challenge

Our vision is for Aotearoa New Zealand to have healthy marine ecosystems that provide value for all New Zealanders. We have 60+ research projects that bring together around 250 scientists, social scientists, economists, and experts in mātauranga Māori and policy from across Aotearoa New Zealand. We are one of 11 National Science Challenges, funded by Ministry of Business, Innovation & Employment.

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Cover image: Snorkel Trip Tutukaka New Zealand. Photo credit: Dive! Tutukaka

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## Executive summary

If New Zealand is to develop marine ecotourism that can achieve social, environmental, cultural, and economic imperatives it must be viewed as part of the overall tourism system in the nation, a system that prior to Covid-19 was not delivering quadruple bottom line benefits. Post pandemic, demand for marine ecotourism will increase, but the sector must be managed carefully if it is to contribute to healthy marine environments and deliver benefits to host communities. To achieve these sustainable development outcomes, marine ecotourism must be factored into ecosystem-based management. It is essential that host communities inform and guide measures of what constitutes success for marine ecotourism. It is also vital that a clearer national picture is generated of the definition, size and shape of the sector.

There are growing calls for regenerative principles to be applied to rebuild a more sustainable tourism system, and well managed marine ecotourism has the potential to be a significant part of this. After the Covid-19 crisis demand for marine ecotourism will undoubtedly increase, but this growth must be carefully managed to ensure that it delivers benefits to local communities and contributes to a healthy marine environment.

Marine ecotourism is complex and requires a holistic approach to be taken to its planning and management. To accomplish this marine ecotourism needs to be factored into ecosystem-based management that takes local community needs and those of non-humans into account. There is a pressing need to examine alternative development approaches that embrace environmental and social dimensions as much as the economic, and that look to indigenous led examples of marine ecotourism development and management.

Local needs must be taken accounted for by planners and developers of marine ecotourism activities. Appropriate policy instruments and indicators need to be based on community insights into development requirements. Likewise, when developing marine ecotourism policy, operators should not be viewed as mere stakeholders but be active in shaping policy and disseminating best practice.

A lack of reliable and consistent information on marine ecotourism industry characteristics and it's social, economic, cultural and environmental impacts, impedes effective decision-making in Aotearoa New Zealand. This, in turn, creates challenges for national level policy and hinders local initiatives and investment. Policy and governance of the sector has languished since the failed Ocean Policy initiative in the early 2000s and there remains a lack of a management framework to enable best practice. Studies of the economic value of the marine ecotourism sector tend to be localised and adopt different foci and methods. Ecological impacts have been studied at national and local levels and have been largely focused on human interactions with the environment.

There is a need to examine and develop more detailed local cases of marine ecotourism success if we are to be able to grow marine ecotourism and ensure that it can achieve sustainable development imperatives. Findings from both the local and the national levels need to be scalable and inform one another if we are to better understand how the marine ecotourism sector contributes to a blue economy and community wellbeing in Aotearoa.

## Introduction

The purpose of this literature review is to understand how marine ecotourism can be developed in Aotearoa New Zealand while balancing environmental, social, economic, and cultural imperatives, and be integrated with an ecosystem-based management (EBM) approach to ocean management.

Marine ecotourism is interconnected and interdependent with other sectors of the blue economy as well as broader types of tourism activities, many of which are coastal. For marine ecotourism to achieve social, environmental, cultural, and economic imperatives it needs to be viewed as part of the overall tourism system in New Zealand which prior to Covid-19 was not delivering quadruple bottom line benefits. There is a pressing need to examine alternative models that prioritise the environmental and social dimensions of sustainability as much as the economic, including looking to indigenous led examples of marine ecotourism development.

The Covid-19 pandemic has devastated international tourism in New Zealand and around the world. In the eight months from April to November 2020 there were 31,400 visitor arrivals to New Zealand, a decrease of 2.1 million compared to the same eight months in 2019 (Stats NZ, 2021). The tourism industry is taking a reflective moment to assess how it can contribute positively to New Zealand's natural capital (MBIE Tourism Futures Taskforce, 2020).

As we seek to recover from the Covid-19 crisis, we must “build back better” and go beyond green recovery mentality and prioritise a blue recovery coupled with sustainable forms of coastal and marine tourism (The World Bank, 2020). Visitor demand for nature-based holidays and coastal destinations will continue to grow with these places viewed as a “safe space” in the post Covid-19 world (Hudson, 2020; Global Environment Facility, 2020). Reflecting these trends, it is estimated that global spend on ecotourism will outstrip overall tourism sector growth (United Nations [UN], 2020).

A blue recovery prioritises nature and supports conservation. Communities need to move beyond being stakeholders in tourism activity to being shareholders in the benefits that are generated (The World Bank, 2020). Marine tourism is underestimated in accounts of the blue economy in Aotearoa New Zealand, and it is clear that potential for *Māori*, community, and wider regional economic development is largely untapped (EnviroStrat, 2019).

The literature review begins with an overview of marine ecotourism. It then outlines what is known about marine ecotourism's economic importance to the world and to New Zealand with the discussion continuing to examine how marine ecotourism links to a blue economy using EBM and regenerative principles. What is known about the sector and its management in New Zealand is then outlined to provide an existing benchmark on the marine ecotourism in the country.

## Defining marine ecotourism

Marine ecotourism is closely linked to marine tourism, with both utilising a common pool of natural capital (United Nations Environmental Programme [UNEP], 2021). Marine tourism is a significant global sector and was projected to be worth USD 390 billion in 2014 (Organisation for Economic Cooperation and Development [OECD], 2016). It is estimated that 80% of global tourism before Covid-19 occurred in coastal areas (The World Bank, 2020). Prior to 2020 coastal and marine tourism was growing at 3.5% per year and was projected to become the largest segment (26%) of the global blue economy by 2030 (Brumbaugh, 2017).

Marine tourism is complex and challenging to define (Orams, 1999; Miller, 2007) and has grown and developed in step with technological advances (for instance sea-walking helmet diving tours, submersible underwater rides) and increased interest from the public. Niche products are continually being developed and include activities as diverse as shark diving and seafood festivals to underwater sculpture and art trails (Milne, Nair, & Clark, 2004; British Broadcasting Corporation, 2020). Definitions of marine tourism include:

“those recreational activities that involve travel away from one’s place of residence and which have as their host or focus the marine environment (where the marine environment is defined as those waters which are saline and tide-affected)” (Orams, 1999, 9).

or the even broader:

“a temporary short-term movement of people to destinations outside their normal environment and activities with a marine setting” (Basiron, 1997, 3).

Ecotourism is frequently seen as a sub-set of nature-based tourism with the latter using natural resources but generally placing less focus on conservation and education (Cater & Cater, 2007). A frequently cited and widely accepted definition of ecotourism is:

“a sustainable form of natural resource-based tourism that focuses primarily on experiencing and learning about nature, and which is ethically managed to be low-impact, non-consumptive, and locally-oriented (control, benefits, and scale). It typically occurs in natural areas and should contribute to the conservation or preservation of such areas” (Fennell, 1999, 43).

Ecotourism seeks to meet social, ecological and economic goals (Ceballos-Lascuràin, 1983; Fennell, 2020). Typical characteristics of ecotourism include: learning, interpretation, low impact activity that minimises negative environmental and socio-cultural impacts, community engagement and control, supports conservation, and upholds the rights and beliefs of indigenous people (Seek & Sellier, 2019). However, as Lück & Higham (2003) note, while it is one thing to define something in principle, it is another thing entirely for it to be translated into practice.

Garrod (2003) employed a Delphi technique to establish a definition of marine ecotourism which resulted in the following elements being identified as important:

- An emphasis on sustainable management of marine ecotourism operations
- Educate tourists about the natural marine environment and its conservation
- Provide benefit to communities and the environment
- Promote the conservation of a species or habitat.

Marine ecotourism was worth USD 50 billion globally in 2016 servicing 120 million tourists (National Geographic, 2016). The economic benefits of marine ecotourism are sporadically quantified, for example Spalding et al. (2017) estimate that coral reef ecosystems, that attract high value dive and snorkelling ecotourists, generate USD \$19 billion per year globally, with an additional \$16 billion generated by 'reef-adjacent' tourism such as seafood and beach related activity. Experts on the blue economy predict that a future trend in marine tourism is the scaling up of ecotourism models (United Nations Environment Programme [UNEP], 2021).

Fennell (2020, 188) insists that "good definitions lead to good policies, which in turn lead to good programmes" but strict definitions can be less useful in the practical context of developing planning and managing marine ecotourism (Garrod, 2003). Garrod (2003, 34) argues that marine ecotourism can be viewed as more of a process than a type of tourism and that "it would be unwise to exclude certain instances of tourism because they do not fit within one's conception of what form of ecotourism it should take".

A commonly accepted definition of marine ecotourism is useful if adopted responsibly by those planning and managing those activities; on the one hand it helps to focus and bring people together, on the other there are dangers of excluding people if something too narrow is adopted. Marine ecotourism is a complex subject "and we should not expect to be able to communicate the intricacies of its true meaning in a 'short and snappy' definition" (Garrod, 2003, 34).

One reason defining marine ecotourism poses a challenge is that it involves multiple goals and development outcomes that can be undertaken for a range of reasons and purposes. The variety of participants involved (residents, tourists, governments, and businesses) can make it difficult to overcome the divergent remits (Saidmamatov et al., 2020).

It can be concluded that it is not so much the definition of marine ecotourism that is important but more so the values and principles that related activities seek to uphold. Cardino Wildlife Cruises in the Bay of Islands, New Zealand shows how values of marine ecotourism are upheld – sustainable business model, the active conservation of the marine environment and contributing the local community (Case 1).

## CASE 1: Low impact marine ecotourism links to science and operator standard development in the Bay of Islands, New Zealand

*Carino Wildlife Cruises* in the Bay of Islands offer six hour long sailing trips that incorporate snorkelling and island scenic walks. They work alongside the Department of Conservation to help craft codes of conduct for marine tourism operators and educate the public about dolphins.

**Supports marine science:** Data is collected on the boat everyday contributing to the Department of Conservation National Sightings Database which is used to inform management decisions concerning the marine environment. Their website supports citizen science and encourages visitors to download apps to report sightings of marine mammals as well as monitor plants and animals on the seashore. A portion of the fare paid by guests goes towards dolphin research in the Bay of Islands and they support marine environmental scientific research by universities.

**Low impact:** The company received a responsible Whale Watching Certificate, by international organisation World Cetacean Alliance (WCA) recognising high standards of care for local wildlife, sustainability, and customer experience. WCA is the world's largest marine conservation partnership and its goal is to protect whales, dolphins and local communities in a responsible and sustainable way. They voluntarily ceased swimming with dolphins in light of research showing negative impacts.

**Contributes to conservation:** Visitors and the wider public are educated about marine mammals during the tour and the importance of pest free islands. The operator supports Project Island Song, a partnership between local Rawhiti hapū (Ngati Kuta and Patukeha), community conservation group Guardians of the Bay of Islands and the Department of Conservation, aimed at the ecological restoration of Ipipiri in the Bay of Islands.

**Sustainable business model:** The organisation incorporates sustainable practices in their daily operations. Examples include a sail equipped catamaran that uses wind power as much as possible, the use of biodegradable cleaning products and they encourage guests to reuse/recycle. They also take part in beach clean ups and have begun a tree planting programme. The business also endeavours to source produce locally.



Source: Carino Wildlife Cruises. Photo credit: Adrien Aletti.

Marine ecotourism can be argued to encompass multiple activities that happen on the water, under the water or on the coast (Table 1).

Table 1: Marine ecotourism activities - Agardy et al. (2018); Cater & Richardson (2017); Cater & Cater, (2007); Senigaglia, New, and Hughes, (2020)

Marine environment	Ecotourism activity	Considerations for development
Inter-tidal walking (coast)	<ul style="list-style-type: none"> <li>Walking trails in the inter-tidal environment</li> </ul>	<ul style="list-style-type: none"> <li>Can cause significant damage to corals when 'reef walking' instruction is needed to ensure coral is not damaged</li> </ul>
Estuaries and mangrove forests (coast)	<ul style="list-style-type: none"> <li>Bird watching and recreational fishing</li> </ul>	<ul style="list-style-type: none"> <li>Can finance protection of mangroves and support the enforcement of laws to restrict ecosystem destruction</li> </ul>
Ocean (on the water)	<ul style="list-style-type: none"> <li>Sea-kayaking</li> <li>Marine mammal observation</li> <li>Marine mammal swimming</li> <li>Sailing</li> </ul>	<ul style="list-style-type: none"> <li>Non-polluting, environmentally sound, activity where marine mammals seem to be more curious than anything yet must be managed well</li> <li>Marine mammal observation can support conservation however the effects that increased boat traffic have on marine mammals such as interrupting sleep. Regulations are required – feeding has shown to have detrimental impacts.</li> <li>Economic benefits, popular high levels of visitor satisfaction getting close to nature, behavior of mammals and interrupting natural cycles is a risk that needs to be managed</li> <li>Low impact mostly non-motorized way to view marine mammals. Often linked to snorkelling activity.</li> </ul>
Coral reefs – fish (under the water)	<ul style="list-style-type: none"> <li>Snorkelling &amp; scuba diving</li> <li>Cage (sharks) diving</li> <li>Underwater observatory</li> <li>Glass bottomed boats/tourist submarines</li> </ul>	<ul style="list-style-type: none"> <li>High value, low impact if numbers are well managed, locals &amp; visitors heightened appreciation of marine biodiversity. Guidelines for both snorkellers and scuba divers exist to limit their presence on the environment (do not feed/touch/sand on stand). Can support scientific research</li> <li>Shark observation is high value and can contribute to conservation but has been controversial with some deaths and shark injury with protocols required</li> <li>Accessible means of educating visitors about the marine environment</li> <li>Often double as scientific research vessels, an accessible way for people to interact with the underwater environment</li> </ul>
Coasts and beaches	<ul style="list-style-type: none"> <li>Bird watching</li> <li>Turtle observation</li> </ul>	<ul style="list-style-type: none"> <li>High value low impact</li> <li>Can financially support scientific work</li> </ul>

Ancillary recreation on the coast and sea takes place alongside marine ecotourism activities. While not technically 'marine ecotourism', research has suggested that those doing recreational activity on the ocean, for example surfer/kite surfers are often willing to pay for beaches that display high levels of environmental quality (Agardy, Vivas Egui, Vignati, & Gómez-García, 2018).

Surfing can be thought of as sitting at the 'fringes' of marine ecotourism being a nature-based use of pristine marine environments and often linked to environmental causes (Cater & Cater, 2007) for example Surf rider Foundation, Save the Waves Coalition and Surfers for Cetaceans. In some cases, surfers are high value visitors and the popularity of a destination for surfing can spur ecotourism product development alongside it (Cater & Cater, 2007). Surf tourism also comes with local benefits including improved living standards and the ability to support sustainable business activities (Towner & Milne, 2017). Yet surfing comes with its own environmental impacts which include using motorised vehicles to reach remote spots and associated coastal development of surf destinations, even the average surfboard has a 270kg Co2 footprint (Serong, 2017). Surf tourism is also not without negative socio-cultural impacts on remote communities (Towner & Milne, 2017).

There are also other activities such as recreational fishing which, while not strictly ecotourism activities, often exhibit "a high appreciation of the natural system and often advocate for environmental quality" (Cater & Cater, 2007, 103). In this context catch and release can arguably be thought of as marine ecotourism (Cater & Cater, 2007; Zwirn, Pinsky & Rahr, 2005). It is therefore perhaps helpful to think of ecotourism as a continuum where the emphasis is placed on sustainability rather than consumption (Zwirn, et al., 2005) or the active engagement with the marine environment (Sakellariadou, 2015).

Given the definitional challenges identified above it may make sense to define the marine ecotourism sector in New Zealand by examining more closely the types of activities involved and the motivations and impacts associated with operators. Such an approach identifies and embraces the complexity involved in defining marine ecotourism (Figure 1). Different marine ecotourism activities are characterised by varying levels of 'marine ecotourism' intensity. Those in the top right quadrant of the diagram represent the group that best fit the 'pure' marine ecotourism profile – for example activities that actively:

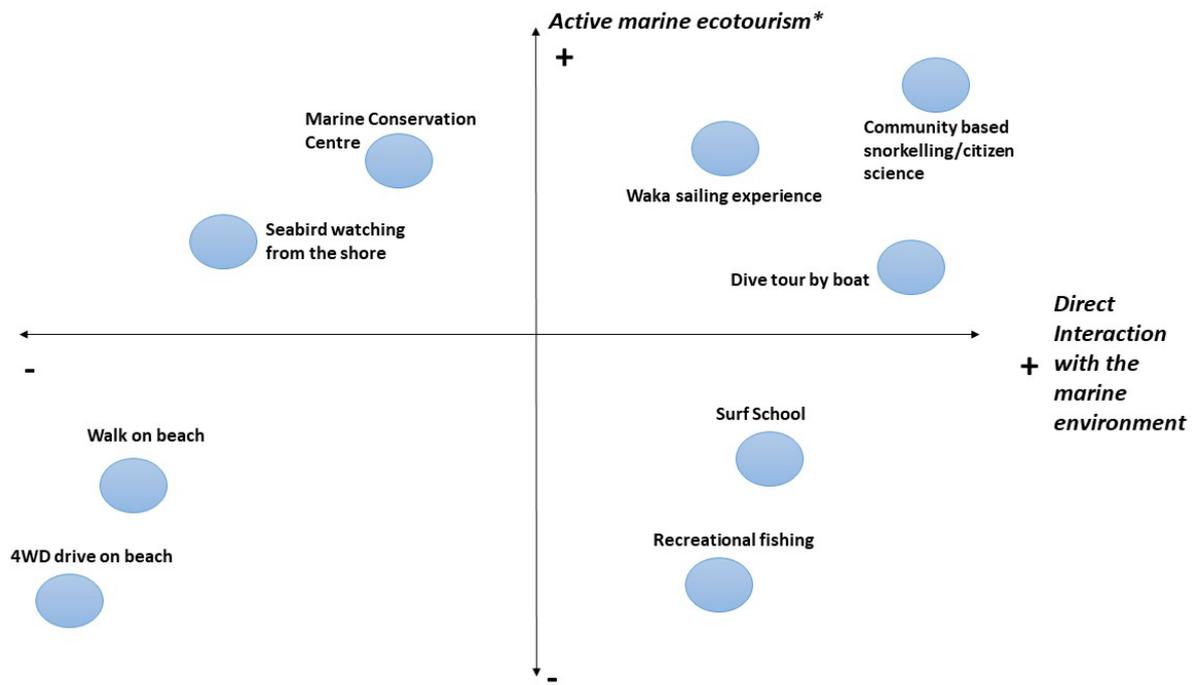
- Conserve the marine environment for example through citizen science, litter picking and/or supporting local conservation activities
- Provide benefit to local communities – supporting community initiatives, employment, locally owned activities
- Uphold the rights of indigenous peoples – encouraging indigenous ownership, supporting cultural interpretation of marine environments
- Provide an immersive learning experience in the marine environment that creates stronger awareness of conservation issues facing the marine world.

The operator's approach will be communicated through mission/vision statements that are relayed to consumers and suppliers. Performance in meeting the mission statement needs to be measured and incorporated into information shared with visitors online or through other modes such as audited certifications.

Marine ecotourism activities in this top right quadrant are low impact (they do not harm the marine environment habitat or species via pollution or the potential disturbance of marine mammals/birds) and are non-consumptive– they do not take from the marine environment or disturb it for example by loud noise generation from petrol engines. The horizontal axis denotes the level of direct engagement with the marine environment (on the water/under the water) or on the shore/near the shore.

Those in the lower left quadrant are not fully immersed in the marine (water) environment and do provide only limited recreational interaction with the marine environment. These activities could be considered marginal ecotourism activities at best and will lack many of the key environmental and community benefits that characterise other quadrants.

Figure 1: Types of activities – marine ecotourism spectrum



\* mission/vision, performance indicators, local benefit, education etc

Source: NZTRI New Zealand marine ecotourism operator database

## Marine ecotourism impacts

The marine ecotourism sector remains understudied compared to its land-based counterpart (Cater & Richardson, 2017) and there is a distinct lack of research on the supply side of marine ecotourism (Saidmamatov et al., 2020). Nevertheless, a range of impact related research has been conducted on the sector. Marine ecotourism is often observed to be a relatively low impact/high value form of tourism that can provide an increased economic incentive for marine conservation (Agardy et al., 2018; Phelan, Ruhanen, & Mair, 2020). Travellers who exhibit pro-environmental behaviour and care for local communities have been found to spend more than regular visitors (Nickerson, Jorgenson & Boley, 2016). Topelko & Dearden (2005) found that marine ecotourists (shark divers) spent 21% more than average visitors to the local area. Research also shows growing demand for sustainable forms of travel and visitor experiences, for example a survey of 2,000 western consumers found that 80% were interested in holidays that were sustainable or eco-friendly (Walter Thompson Intelligence, 2018).

Marine ecotourism utilises marine and aquatic ecosystems with visitors paying to interact with the fauna in these settings. In many cases this revenue directly supports the conservation of marine areas by financing protection, contributing to conservation science and aiding research activity (Agardy, et al, 2018; Hudson, 2020; Fennell 2020). Conservation values of visitors are also enhanced through close encounters with the marine environment facilitated by ecotourism activities (Buckley, 2009). This is increasingly important as people must have more connection to the natural world to consider their impacts on the environment (HM Treasury, 2021). Case 2 shows how high value ecotourism has created jobs in remote areas and provides revenue that funds marine protected areas (MPAs) while engaging guests in conservation, nature and citizen science initiatives.

## Case 2: High value marine ecotourism drives revenue to protect marine environments

*Blue Safari Seychelles* was founded in 2018 in response to a need to create revenue to protect the marine ecosystems of the outer islands of the Seychelles. Blue Safari offers luxury experiential holidays that allow travellers to both explore the Outer Islands of the Seychelles while helping to protect the marine ecosystems of these diverse islands and atolls. A high value experience aimed at the luxury market it is branded as the “marine conservation experience of a lifetime”.

Blue Safari offers several activities and programmes, such as snorkelling with and photographing manta rays (citizen science marine research), birdwatching walks, turtle patrols, scuba diving, tree planting, beach clean-ups, and a scuba diving excursion to collect debris from the ocean. The company works with four of the islands and supports 150 staff. Travellers who visit any of the islands are required to pay a USD 25 a day conservation charge, which is donated to a designated foundation and put towards ecological and environmental programmes and initiatives. The accommodation available includes lodges, eco-camps, as well as eco-pods made from shipping containers.



Source and photo credit: Blue Safari.

While marine ecotourism is often portrayed and viewed as sustainable it can have adverse environmental impacts so activities must be managed in such a way that they create a positive contribution (National Institute of Water and Atmospheric Research [NIWA], 2012; Fumagalli et al., 2021). Alongside potential damage to sensitive marine environments by increased visitor numbers the “loss of natural quiet” in the New Zealand Conservation estate is also highlighted as an area for concern (Parliamentary Commissioner for the Environment [PCE], 2021).

Marine ecotourism often takes place in ‘pristine’ and fragile marine environments that are vulnerable to growing numbers of visitors. In response, mitigation strategies such as the International Standard for Organization (ISO) 2116:2019 ‘recreational diving services requirements and guidance for environmentally sustainable practices’, provide guidance on the provision of services. This ISO standard both promotes the conservation of natural habitats as well as developing respect for the communities who host visitors.

Conservation of the ocean is supported by marine ecotourism operators who are partners in monitoring the ocean (Ward-Paige, Davis, & Worm, 2013). Exploitation of MPAs has increased during Covid-19 and marine ecotourism operators have been acting as key ‘eyes on the ocean’ to report any breaches (United Nations [UN], 2020). Marine ecotourism guides also play a key role in communicating scientific data in meaningful ways to visitors. This has been formalised via the Master Reef Guide Program in Australia’s Great Barrier Reef. Reef Guides are trained by world-leading specialists drawn from Traditional Owners, science specialists and the Marine Park Authority’s Chief Scientist. The guides are immersed in knowledge and experiences to strengthen their connection to the Reef, with the programme creating leaders in reef interpretation storytelling and marine ecotourism experience delivery (Australian Government, n.d). Dreamtime Dive and Snorkel Tours represent a partnership between a large-scale adventure tourism corporation, indigenous communities and marine scientists to leverage marine ecotourism to support the protection of the Great Barrier Reef (Case 3).

**Case 3: Partnerships – Commercial tourism operation, indigenous communities and marine scientists partner to provide marine ecotourism to protect the Great Barrier Reef**

*Dreamtime Dive and Snorkel* run indigenous guided one day long sea tours to the Great Barrier Reef. Connections are forged by traditional owners of Sea Country (Great Barrier Reef), a large-scale tourism corporation and marine scientists who aim to protect the Great Barrier Reef. *Dreamtime Dive and Snorkel Tours* is owned and operated by Experience Co Ltd in cooperation with the four local Indigenous tribes: The Gimuy Walubara Yidinji, Gunggandji, Mandingalbay, and Yirrganydji people, whose traditional ancestral lands range from Port Douglas, about 70 kilometers north of Cairns, to the Frankland Islands, some 45 kilometers to the south. They have a predominately indigenous crew with Sea Rangers, including Aboriginal and Torres Strait Islander youth, who communicate the scientific research that is being undertaken by marine biologists in an accessible way to guests while at the same time telling their stories of the reef and the indigenous value of the ecosystem. The experience is described as “the only cultural reef experience”.

The company carries the highest accreditation awarded by Ecotourism Australia - the Advanced Eco Accreditation, along with a Climate Action Business Certification.



Source and photo credit: Dreamtime Dive and Snorkel Tours

Conservation of marine environments can be directly supported through marine ecotourism with many marine parks relying on diving tourists to pay for management costs (Cater & Richardson, 2017). 'Eco divers' have been put to work around the world collecting conservation data. For example, the Reef Check Foundation enlists eco-divers as underwater citizen scientists to monitor the health of reefs at 90 global sites and to date 10,000 surveys have been generated that are being used for marine science activities (Reef Check Foundation, n.d). In response to Covid-19, the Australian government has invested AUD 3.2 million and repurposed 300 marine ecotourism staff on the Great Barrier Reef to undertake in-water conservation and monitoring across 234 reefs. The work includes impact surveys as well as protecting coral cover by culling coral-eating crown-of-thorns starfish (Australian Government, 2021).

Ecotourism is widely seen as a powerful tool to drive economic development, creating jobs and driving inward migration to destinations and surrounding regions (Roxas et al., 2020). While marine ecotourism is considered a viable sustainable economic alternative to extractive industries (Pham, 2020), this is a 'gamble' providing an extrinsic rather than intrinsic motivation for conservation, and when this is removed (such as during Covid-19) it can eliminate support for conservation and communities may quickly revert back to extractive practices for survival (Fletcher et al., 2020). The promised benefits of ecotourism from an ecological point are also diminished when carbon is factored into the equation, usually due to long haul travel to reach the destinations, an issue exasperated when numbers grow (Fennell 2020; Becken et al., 2003).

Although the benefits of developing marine ecotourism include business development and job creation some ask whether this leads to 'elite-capture' with external investors crowding out local development opportunities, and the commodification of the destination and encroachment of development into conserved areas (Roxas et al., 2020). A mitigation strategy is community ownership or domain over ecotourism sites, and early implementation of carrying capacity management (Roxas et al., 2020). For example, in Sabah Malaysia early action was taken by the Ministry of Environment in Tourism to reduce the number of visitors to Pulau Sipadan Island by 25% of their peak number. Restrictions led to a healthier marine environment and gave the island exclusivity with dive operators commanding a higher price as a result (Cater & Richardson, 2017). Community ownership and control of marine ecotourism in the Raja Ampat Islands of West Papua Indonesia is a good example of indigenous knowledge being integrated into a concession arrangement between marine ecotourism operators and the local community, this safeguards cultural landscapes and traditions and conserves biodiversity (Prasetyo, Carr, & Filep, 2020).

Traditional knowledge is often excluded from policy due to it frequently being undervalued from the perspective of western science. There is a dearth of studies that draw on indigenous knowledge even though culture and community are often underlined as key aspects of ecotourism development (Prasetyo et al., 2020). Studies of ecotourism in indigenous settings generally tend to have been undertaken from an outsider perspective by scholars in the Global North studying communities in the Global South (Wondirad, 2019). In some cases, local and indigenous knowledge and processes have been neglected, especially when overseas

knowledge is imported. For example, in the Solomon Islands, the 'fly in' consultancy model relating to marine ecotourism development has been criticised for not considering the social and political contexts of tourism development (Cater & Cater, 2007). Even in western contexts, local knowledge of community management is neglected, as was the case in New England's St Martin Fishing Communities, where scientific narratives "failed to value local knowledge" (Cater & Cater, 2007, 43).

In New Zealand, Māori have been owners of successful marine ecotourism businesses for decades and indigenous scholars have highlighted the holistic value to communities of Māori owned marine ecotourism enterprises (Amoamo, Ruckstuhl, & Ruwhiu, 2018; Carr, 2020). Case 4 reflects on how a Māori owned and operated marine ecotourism venture directly supports indigenous sea-faring heritage.

**CASE 4: Māori owned marine ecotourism supports indigenous cultural revitalisation - Waitematā Harbour Tāmaki Makaurau, Auckland**

*Arawai (paths across the water)* is a Māori owned and operated company with charitable status. Visitors are taken on 'Te Aurere' a replica of a genuine ocean-going Māori waka hourua (a double hull canoe). Profits go to the charitable organisation to support waka building, waka sailing, and cultural development for all the people of Aotearoa New Zealand.

Visitors experience first-hand sailing on vessels that brought Māori to Aotearoa and learn about traditional wayfinding. The business runs on a triple bottom line basis. It takes a 'geo-tourism' approach with a focus on tourism that sustains heritage, culture, environment, and the wellbeing of residents. Sustainable practices among others include linking to and promoting other local tourism operations and attractions.



Source and photo credit: Arawai

Ecotourism must be 'done well' to achieve its 'lofty goals' (Fennell, 2020; Wondirad, 2019). There have been long standing issues with the 'greenwashing' of the term 'ecotourism' by those that do not uphold conservation values (Cater & Cater, 2007). Well planned, monitored and managed ecotourism must be enacted to avoid the pitfall intentionally or unintentionally of being a mere 'marketing hoax' (Wondirad, 2019). Benefits of ecotourism are usually reported at the micro level and there are less studies on the impacts - be they positive or negative -across spatial or temporal scales (Wondirad, 2019; Hall, 2007).

Benefits of marine ecotourism include: the preservation of biodiversity, financing of conservation and environmental protection, raising awareness of conservation issues and enhancing the economic viability of protected areas (Saidmamatov et al., 2020). Some of the costs associated with development of the sector include foreign ownership squeezing out local businesses and potentially creating an industry that disenfranchises local people of access to their natural resources, failing to deliver on promised economic, social, cultural and/or environmental benefits (Roxas et al., 2020; Cater & Cater, 2007).

There are also a multitude of studies over three decades in New Zealand on the impacts of marine tourism on cetaceans concluding that detrimental impacts are evident and suggesting research now moves onto how to prepare for and mitigate the risks (Fumagalli et al., 2021).

## How does marine ecotourism support a blue economy?

The blue economy concept is widely viewed as embodying the sustainable use of ocean resources for social and ecological wellbeing (Phelan et al., 2020). Developing marine ecotourism that links to the blue economy in Aotearoa New Zealand directly supports government priorities for the tourism industry to restore and strengthen natural capital and support “thriving and sustainable regions” (Ministry of Business Innovation and Employment & Department of Conservation, 2019, 16). Marine ecotourism provides an economic incentive to improve ocean management and supports a blue economy that delivers local benefits (Cisneros-Montemayor, Becerril-García, Berdeja-Zavala, & Ayala-Bocos, 2020). Despite this marine ecotourism in New Zealand is understudied and overlooked by policy makers with its full value not realised (Market Economics, 2019).

The socio-economic benefits generated by the natural world are collectively referred to as ecosystem services (Agardy et al., 2018). The Ecosystem Services Approach (ESA) looks at a holistic range of potential benefits to humans from a given ecosystem with the aim of communicating to stakeholders the benefit that nature provides (Phelan et al., 2020). By taking an ESA approach, modelling of scenarios and cumulative effects can provide a clearer understanding of the gains and trade-offs involved, and investments needed, to manage the tourism system effectively. In reality though, tourism decision making is fragmented across multiple departments without consideration of how one decision could impact on the overall ecosystem (Nikolova, 2020).

Ecosystems are widely interconnected with a variety of feedback loops and linkages, and decisions are often made that can cause the loss of one habitat that has ramifications for multiple stakeholder groups (Agardy, et al., 2018). ESA contends that the benefits that ecosystems provide, including to human wellbeing, need be factored into all decision making (Phelan et al., 2020).

Ecosystem services can be divided into four types (Agardy et al., 2018):

- Provisioning: provide commodities – fish stocks, aquaculture, tourism attractions
- Regulating: mitigate natural shocks and maintain ecological equilibrium e.g. slowing beach erosion, sequestering carbon and maintaining water quality
- Supporting: processing that is critical to sustain life such as producing oxygen and nutrient cycling
- Cultural: support human wellbeing from economic (marine ecotourism), education and learning, scientific research, recreation, and environmental quality.

Mangroves, coral reefs, and sea grass are examples of marine ecosystem services. Often abundant marine ecosystem services are concentrated in small geographic areas therefore conserving these areas enhances the socio-economic value of larger coastal and marine areas (Agardy et al., 2018; Dencer-Brown, Alfaro, & Milne, 2019).

Marine ecotourism is intrinsically linked to other sectors of the blue economy and activities that occur on the ocean and the coast. It is therefore essential that a holistic disciplinary view is taken to understanding the dynamics and challenges facing the sector (UNEP, 2021; Cater & Cater, 2007). For example, harmful activities such as Navy sonar, or run off and algal blooms caused by extractive industries negatively affect the marine environment and degrade the 'product' for marine ecotourism (Thorburn, Krause & Milne, 2017; Cater & Cater, 2007). Similarly, fisheries development impacts on marine ecotourism due to its circular and cumulative effects in the ocean (Cater & Cater, 2007). For example, a rise in sea temperatures due to climate change and industrial fishing of sand eels (a key food for pelagic birds and mink whales) in the Scottish Isles saw a decline in bird populations and lower sightings of whales which then had a consequent effect on the local coastal and marine ecotourism sector (Cater & Cater, 2007). Conversely tourism can be a vehicle to preserve fisheries traditions and cultural heritage and can subsidise fisheries income when in decline (Brookfield, et al., 2005). The links between climate change and coral reef bleaching is putting the Great Barrier Reef in Australia, arguably the most famous and profitable marine ecotourism product in the world, at risk (Curnock, Marshall, Thiault, & Heron, 2019).

To transform tourism, inclusive models and policy frameworks are needed to create productive links between the industry and other sectors (UN, 2020). For existing and new developments of marine ecotourism, the interaction with other sectors in the marine environment must be factored into planning to enable transition to a blue economy (UNEP, 2021). Several national and global blue economy initiatives are underway to research, monitor and map the blue economy, including spatial planning that attempts to understand these inter-sectoral interactions – see Case 5.

## Case 5: Marine tourism and blue economy initiatives

- *PROBLUE Healthy Oceans, Healthy Economies, Healthy Communities* is a World Bank led multi-donor initiative aimed at developing healthy marine and coastal resources in a blue economy. It uses a Blue Economy Development Framework which contains analytical tools and technical assistance to help countries define and roadmap towards a sustainable blue economy. Research related to marine tourism is focused on assessing the impact of Marine Protected Areas (MPAs) on regional economies.
- *Ocean Health Index (OHI)* is a global tool to assess the state of marine eco-systems. The aim is to create open data to support marine policy formulation using an EBM approach that is scalable from local to national levels. The OHI is assessed across 10 elements: food provision, artisanal fishing opportunities, natural products, coastal protection, sense of place, livelihoods and economies, tourism and recreation, clean water, and biodiversity. For tourism and recreation, the ideal approach is to find out how the ocean is used and enjoyed by visitors and locals and compare this against local measures of tourism sustainability.
- *Blue Economy Cooperative Research Centre (CRC)* is an Australia based initiative that brings aquaculture and renewable energy sectors together to address the challenges of offshore food and energy production. While there is no marine ecotourism specific component there are tools in development that will assess cross sector interactions for the blue economy, such tools are relevant to marine ecotourism and assessing interactions with other sectors of the blue economy.
- *Mapping Ocean Wealth* is an initiative of The Nature Conservancy that brings together science and policy work to quantify and map local marine ecosystem services to inform better decision making. The initiative takes an EBM approach to ensure that ecosystem services are integrated into decision making through natural resource planning and policy. It has been applied to marine ecotourism providing, for example, an estimate of the economic value of coral reefs and winning the World Travel & Tourism Council (WTTTC) Tourism for Tomorrow Innovation Award in 2017 for highlighting tourism's contribution to the economy and environment.
- *Seas Oceans and Public Health in Europe (SOPHIE)* is a pan European research programme looking at the links between marine environments and human wellbeing. Two key citizen science projects involved nearly 100 marine tourism providers across Europe enrolling their customers and professional teams in two initiatives. "Mapping Ostreopsis", explored how coastal tourism operators might provide early warning for issues such as harmful algal blooms. The "Blue Effect" aimed to understand how marine ecotourism impacts the wellbeing of participants and their attitude towards environmental challenges.

Sources and further information: Appendix 1.

Pham (2020) found in support of earlier studies (New Zealand Tourism Research Institute [NZTRI], 2009; Scheyvens, 1999) that the marine ecosystem is most valuable to local communities when tourism, fisheries and aquacultures work together. This finding is more relevant in light of Covid-19 where diversification of local economies is key to resilience and an overreliance on tourism as the dominant economic earner has become a weakness (UN, 2020). As an example, Māori ecotourism operators (Kāpiti Island Nature Tours) have already diversified into manuka honey production using hives located on family land in response to Covid-19 (Carr, 2020). While the importance of cooperation and inter-sectoral linkage formation is recognised as essential to successful ecotourism this is not always seen in practice (Fennell, 2020). This is usefully due to the challenges in achieving compromise between different agendas and jurisdictions involved in ecotourism.

## Integrating regenerative principles into the tourism system

The Covid-19 crisis has been a catalyst for nations around the world to ‘reimagine’ and ‘re-set’ tourism to be regenerative and add value to local communities and natural environments (Higgins-Desbiolles, 2020; Pollock, 2020; OECD, 2021; Čorak, Živoder & Marušić, 2020). How we currently measure success in tourism is a key contributing factor to the growing extractive nature of the industry, in particular a fixation on visitor numbers and associated economic value. It can be argued that the dominance of these indicators of success have led Aotearoa New Zealand to a point of unsustainable growth (PCE, 2021).

A key focus in any definition of marine ecotourism must be its ability to meet indicators of sustainable development. Sustainable tourism emphasises social and environmentally responsible forms of tourism which does not refer to a specific type of tourism and is an aspiration of all forms of tourism (Global Sustainable Tourism Council, n.d). New and emerging descriptions of tourism (e.g. regenerative, responsible, green, geo and eco, slow, transformative) seek to draw attention to the need for a holistic approach to the development of the visitor industry, something that lies at the heart of sustainable development. As Becken (2020) notes:

“Ultimately, the goal of operating in a way that does not compromise the opportunities of future generations (i.e. following the 1987 Brundtland Report), is not so different from the new paradigm of regenerative economies, or more specifically regenerative tourism”.

Sustainable development has always been linked to corrective action and wellbeing however the social and environmental dimensions have been largely underplayed or paid lip service to in the tourism arena (NZTRI, 2021).

Regenerative approaches are now being highlighted given current Covid-19 circumstances that enable ‘downtime’ to reflect on past excesses and the possible reimagining of the way forward.

Regenerative approaches are another step towards achieving the core concepts that underpin the original focus of sustainability and the complex interrelationships that strengthen it (Bramwell, Higham, Lane, & Miller, 2017). Regenerative approaches already exist as a

component of sustainability – and are now being emphasised in more detail given current Covid-19 circumstances.

Cave & Dredge (2020) interpret these crises related opportunities as a chance to ‘incorporate diverse economic practices’ in the tourism sector. Calls for a regenerative model of tourism are not new, Gibson-Graham (2006) called for ‘post capitalist economic alternatives’ that allowed for social and environmental systems to regenerate and Pollock (1995) called for the ‘transformation of the tourism industry’ beyond a narrow economic and extractive understanding. Proposed regenerative alternatives expand motivations for business and industries beyond economic organisation to other forms of value such as public good, community value and regeneration of natural resources including marine ecosystems.

Models such as regenerative capitalism have been put forward acknowledging that the market is not self-correcting and free, and that there is a societal cost to the depletion of natural capital (Fullerton, 2015). Regenerative principles as they relate to tourism look to prioritise more than just economic goals. They appeal to a deeper human connection to the natural world; “human consciousness and actions with living systems principles” and align with ancient wisdom including indigenous people’s knowledge and practice and eastern spiritual traditions (Gibbons, 2020, 1). Indigenous cultural landscapes integrate a holistic view of the interconnectedness of human activity and spiritual connection. These landscapes evoke wellbeing, health, environmental guardianship and traditional ecological management and they “are the future of cultural sustainability and their wise management should be of equal importance to economic development” (Carr, 2020, 10).

Regeneration can be thought of as economics that combines ecology to ensure that the economic system does not exceed ecological systems bounds to the point where they are unable to regenerate or respond to natural or other shocks (Fullerton, 2015). Yet management in practice is fraught due to the struggle to reach any consensus on what these ‘bounds’ are (Hall & Wood, 2021). For Māori, a framework is lacking to establish limits of acceptable environmental change for different taonga from the effects of tourism, something that Matunga, Matunga and Ulrich (2020, 295) note is “essential to bridge the implementation gap between the goals of Aotearoa New Zealand’s national tourism and environmental strategies and the outcomes on the ground”.

Not surprisingly due to the complexity and cross cutting nature of tourism across cultures and sectors and its multitude of tangible and intangible impacts, it is not clear in the literature how we manage such transitions to a more sustainable and regenerative system and who is responsible for this transformation. The impacts of tourism development are felt at the local scale, at the ‘coal face’ where visitor and host interact. Communities must play a role in co-creating place-based indicators and strategies to guide approaches and actions that integrate different ways of knowing to link tourism to thriving communities (Gibbons, 2020). Community wellbeing lies at the heart of sustainable tourism discourse (NZTRI, 2021). The key message is to reorient tourism in ways that are inclusive and build community resilience (Higgins-Desbiolles, 2020). Applying regenerative approaches to achieve true sustainability in tourism is acknowledged in the literature as the transformative change that needs to happen (Ateljevic, 2020). There is a need to intertwine all dimensions of sustainability in a more holistic manner;

and to do so with regenerative approaches that are more about giving back to people and place – and not just to a company or organisation (Hutchins & Storm, 2019).

A Covid-19 recovery therefore cannot just be about ‘responsible tourism’ solutions it must prioritise social and ecological justice (Higgins-Desbiolles, 2020; Carr, 2020). In response to calls to prioritise the social and environmental aspects of sustainable tourism development Hall and Wood (2021) recommend that to balance supply and demand “we need to consider more substantial questions about what tourism is being used for and then identify desirable and undesirable markets and their characteristics” (3). Others go beyond desirable market characteristics and call for values-based decision making (Pollock, 2020; Dredge, 2021).

‘Convivial conservation’ has been put forward as another approach to achieving social and ecological imperatives where coexistence with nature moves beyond a commodified encounter and provides redistributive mechanisms such as conservation focused basic income for communities (Fletcher et al., 2020). Māori cultural values need to be incorporated into the planning of New Zealand’s tourism system to create more equitable futures. This, in turn, will generate benefits in more positive experiences for both hosts and guests (Carr, 2020; Matunga et al., 2020). A new tourism model for New Zealand should see tourism being a positive contributor to conservation (PCE, 2021). The industry must be supported to achieve this by improved institutions (currently fragmented) and good tourism data (Peart, Woodhouse, Schlaepfer, Koolen-Bourke, & Taylor, 2021).

A better tourism future will encapsulate the indigenous social, environmental and cultural values that underpin ways of being and undertaking business (Carr, 2020). A diverse economies framework incorporates different forms of organisation from various socio-cultural contexts and encompasses other forms of exchange, such as bartering, participatory economies and other forms of value creation such as social contribution (Gritzas & Kavoulakos, 2016). Māori ecotourism businesses often engage with capitalism to better service socio-economic and cultural needs that extend beyond profit making to emphasise building resilient communities (Amoamo, et al., 2018).

An example comes from Blue Penguins Pukekura on the Otago Peninsula. This is a Māori operated marine ecotourism venture. framework which embraces discourse about what constitutes economic development. The profits go towards ecological restoration and promoting penguin breeding success. Visitor numbers are restricted so that the business stays within the ecological limits and carrying capacity of the local ecosystem. There is full acknowledgement of the need to support the penguin population in order to have a sustainable business. The business utilises a diverse economic for Māori, challenging the western capital centric view of tourism development (Amoamo et al., 2018).

With mounting pressures on the marine environment in New Zealand we must reimagine the norms of western planning and proactively incorporate indigenous values in post Covid-19 management approaches, rather than the current reactionary management to over tourism (Carr, 2020). Carr (2020) calls on agencies at all levels in New Zealand to resource community and environmentally centred tourism planning approaches that incorporate indigenous values. It is not only in tourism, but across a range of sectors, that indigenous entrepreneurship has

been shown to contribute not only to local economic development but also to environmental protection and cultural maintenance (Macpherson et al., 2021).

Tourism social enterprise approaches that aim to mitigate social problems and maximise the positive benefits of tourism represent another alternative to traditional business models (Lange & Dodds, 2017). Social enterprise business models are sustainable and are economically sound. Profits generated are fed back into the social good, whether that be environmental, social or cultural dependent on the business mission and local context. In New Zealand traditional business financing options do not encourage social enterprise models – nevertheless there are many examples of such businesses across different sectors in the country (Aotearoa Circle, 2020).

While no marine ecotourism social enterprise business models have been highlighted in the literature in Aotearoa New Zealand there are international examples to look to. Blue Ventures is an award-winning social enterprise that works with coastal communities to rebuild fisheries through the creation of Locally Managed Marine Areas (LMMA). The locally managed marine areas working with Blue Ventures are focused on sustaining vital tropical ecosystem services that also attract marine ecotourism. The development of small scale and well managed tourism leads to the development of associated infrastructure, including homestays, that open opportunities for the further spread of benefits throughout the community.

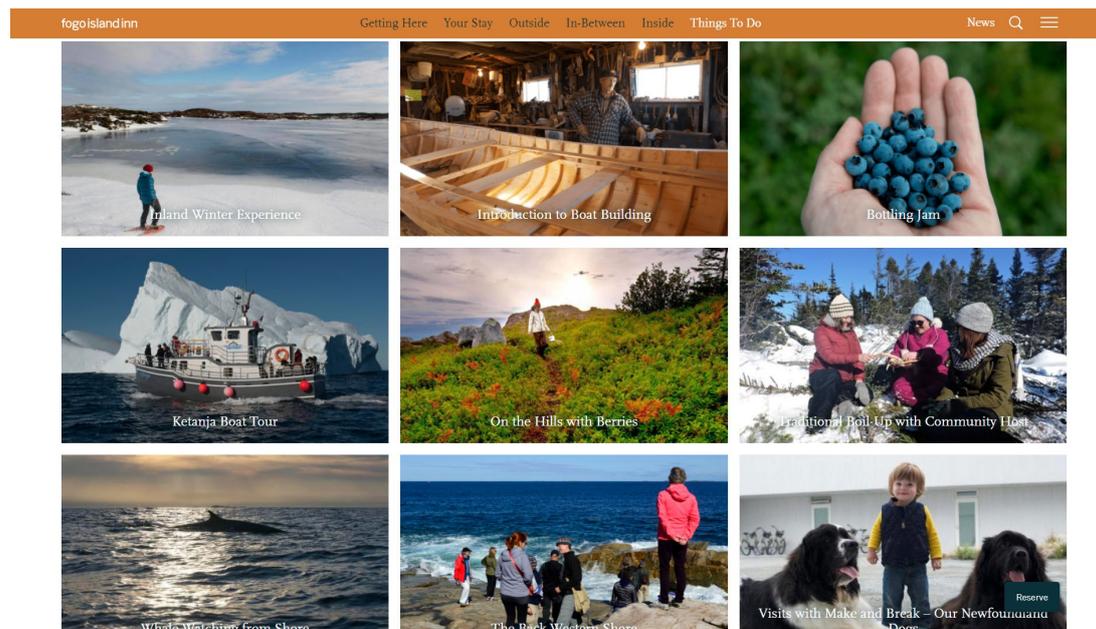
Case 5 provides an example of an alternative business (social enterprise) on Fogo Island, Newfoundland that links visitors to coastal and marine ecotourism as well as wider locally based economic activities and delivers benefit across a wide spectrum of the community. The model is also focused on regenerating aspects of island life in a fishing community that have been disappearing with the pressures of outward migration.

## Case 5: Social Enterprise model links community to marine ecotourism

The Fogo Island Inn, a 29-room community focused hotel and cultural attraction, is owned by the Shorefast Foundation, a Canadian charitable organisation that aims to foster cultural and economic resilience in this traditional fishing community. All operating surpluses are reinvested into the local community.

The Inn has adopted a responsible, systems-based approach to design and actively markets this to both visitor and host community. The Inn has a clear and internationally benchmarked environmental strategy that has been adapted to meet the local context. The business also ensures that ethical suppliers, and tactics are in place to protect the environment.

The Inn plays a vital role as a doorway to a range of local experiences and activities, all of which focus on the natural and cultural heritage of the area. There is an emphasis on local food and guided activities that engage the local community. Visitors can also see other examples of the traditional economy such as fishing and boat building. As the founder of Shorefast notes the Inn can also be a focal point to encourage strong connections to local handicrafts and build visitor yield.



Source: [www.fogoislandinn.ca](http://www.fogoislandinn.ca)

Other alternative business models have been applied to tourism in efforts to encourage more sustainable and regenerative practices. The circular economy has been a popular choice among 'post capitalist economic alternatives' with its focus on reduce, reuse and recycle. Its application within tourism has mostly focused on hotels and the hospitality sector generally (Rodriguez, Florido & Jacob, 2020). Businesses taking a circular approach in moving towards a regenerative model need to think about how collaboration with partners can make the venture more sustainable (Walter Thompson Intelligence, 2018). For a circular approach to work, companies must have a clear vision of what the circular economy means to them and how it aligns with core business goals. Several tools are then available to track progress (The Sustainability Institute, 2021). While the circular economy approach certainly helps to bring environmental sustainability to the fore, the social and cultural benefits are often seen as secondary rather than equal (Padilla-Rivera, Russo-Garrido, & Merveille, 2020). Nevertheless, the model is seen by some as holding potential for tourism businesses to reach higher sustainability as well as greater profitability (Manniche, Larsen, Broegaard, & Holland, 2017) but more research is needed in how this happens in practice (Rodriguez, Florido & Jacob, 2020).

The United Nations World Tourism Organisation (UNWTO) (2019) outlines in detail how tourism policy makers can integrate Sustainable Development Goal (SDG) 12 'responsible consumption and production' and advocates for circular approaches to industry development. It is notable however that the UNWTO does not look at how this effects other SDGs including SDG 14 'life under water' which aims to sustainably manage and protect coastal and marine ecosystems. Indeed, there are no such reports or papers unearthed by this literature review that are explicitly focused on helping tourism policy makers integrate SDG 14 into industry planning and management. This omission is problematic as competing goals can then be prioritised above others rather than viewing them as interconnected. In simple terms focusing on SDG 8 economic growth could come at the cost albeit unintentionally of SDG 14 'life below water' (Gibbons, 2020).

## Marine ecotourism and ecosystem management

Marine ecotourism relies on access to marine resources and is increasingly recognised as a major feature of marine ecosystems and their management. Ecosystem based management (EBM) is a popular tool for ocean management as it provides a holistic view of all impacts including human impacts on the marine environment and has been promoted as an approach for both healthy seas and sustainable marine tourism (Heenehan et al., 2015).

While not addressing tourism specifically, a recent review of the state of ocean governance (Haas, et al., 2021) locates the primary challenges to ocean governance in the diverse human interests in the ocean as well as uncertainties in scientific knowledge. They further argue that a more sustainable form of future ocean governance will need to incorporate stakeholder engagement and community interests alongside established institutions, regulations and sources of knowledge. Marine tourism is recognised as having a significant role among these diverse interests. Cánovas-Molina and García-Frapolli (2020) identify tourism as an influential participant in the conflicts related to MPAs, with the potential to raise awareness of ecological conservation while also threatening that conservation by increasing the exposure of MPAs to human contact. Similarly, Ruckelshaus, et al. (2008) recognise tourism related actors as an important interest group in existing marine ecosystem-based management, the extent of the sector's inclusion being subject to emergent practices that progressively expand the boundaries of the ecosystem.

While overviews of the potential for improved marine management emphasise the need for engagement with diverse interests, Lachapelle et al. (2010) warn that trends in human resource use will place greater pressure on natural resource planners to achieve adaptive management in the context of contestation over goals. Specific challenges to successful ecosystem management are identified in 'sectoral interplay' (Alexander & Haward, 2019), or the challenges in bridging the objectives and directives of regulatory organisations with the narrower focuses and interests of other stakeholders in EBM; the contradictions in economic growth for social and environmental wellbeing (Okafor-Yarwood, et al. 2020); environmental justice (Jamal and Higham 2021), the inequalities in impacts and costs of nature-based tourism on communities and other stakeholders; and the need to empower voices in the community (Phelan et al., 2020).

The most frequently addressed challenge to ecosystem management involving tourism is the issue of interactions among the diverse interest groups involved, something also raised in marine ecotourism policy development (Saidmamatov et al., 2020). The consequences of limited or poorly managed engagement between stakeholders in ecosystem management are reported as involving social exploitation or disempowerment (Christie, et al. 2007; Hadjimichael, et al., 2014; Jones & Seara, 2020) or environmental degradation (Dimmock, et al., 2014). In these cases, the interests of more powerful actors impinge on the rights and/or wellbeing or other parts of the ecosystem. The recognition of this issue is also evident in proposed frameworks that aim to reduce such imbalance.

At a more basic and individualised level, Moon, et al. (2021) argue that property rights should be mediated by enforced responsibilities to ensure conservation outcomes are achieved.

Smythe, et al. (2019) emphasise the role of 'brokers' in marine EBM, pointing to the unique influence of stakeholders whose larger mental maps of the ecosystem allow them to facilitate interactions and distribute information amongst the wider set of participants.

Others address the social relationships within ecosystem management. Becken et al. (2018) and Loehr, et al. (2020) locate the solution in planning processes that address specific frames of reference either as the proactive engagement among sectors (including tourism, government, other industries) or in acknowledging the relevance of multiple capitals (natural, social, financial and human). Higham, et al. (2008) stress the need for integrative and adaptive management concepts to ensure that all ecosystem interactions are considered in the context of the need to respond to a changing context of knowledge, objectives and goals. The potential of adaptive management to account for multiple interests and objectives over time is also reported by Islam, et al. (2018). They note, however, that the main benefit lies in the opportunities for iterative learning and the resulting commitment to improved governance of tourism.

Case 6 shows how adaptive management for Bigfin squid was applied to marine ecotourism activities in Taiwan.

## Case 6: Adaptive management for Bigfin squid applied to diving tourism activities Taiwan

Bigfin squid are a commercially important fishery resource and a focus of sightseeing and diving tourism in the coastal waters of Northeast Taiwan. Both fishermen and divers have observed a decline in squid populations.

Without consulting government or fisheries, divers arbitrarily deployed bamboo clusters as squid aggregation devices to assist with mating and spawning to help restore squid populations. Following a series of conflicts and negotiations the devices were placed in approved areas with local government permission. Yet key users were left out of the management loop (fishermen/recreational fishers) and threatened the new squid populations.

Collaborative techniques were then employed to coordinate the duties and responsibilities of all resource users and build relationships and understanding of the inter-dependencies between them. A modified management model based on adaptive management strategies (scientific monitoring, information sharing/learning, collaborative decision making based on squid population stability, and regulation amendments to deal with events as they arose) was developed to cope with the evolving situations. This modified management model incurred more expenses for example through more intensive monitoring by divers of squid populations. Marine ecotourism was put forward as a strategy to resource the model, for example through ecotours which could raise funds for dive centers to cover expenses of monitoring.



Source and photo credit: Chen, Ku & Chen (2016)

Related to the contested interests of participants in ecosystem management, the specific clash in economic and other wellbeing objectives has been identified as having significant implications for ecosystem management that involves tourism. Bogadottir (2020) documents the negative impacts of government policies to promote Blue Growth in the Faroe Islands on communities and local tourism. Bogadottir (2020) bases their argument on the impacts of a growing social metabolism, driven by a focus on economic growth, that increases consumption and disturbance of the marine ecosystem. Similarly, Llausas et al. (2019) investigate the failure of policies, based in the concept of carrying capacity, to reduce the overuse of a MPA by tourists due to the financial interests held by more powerful actors and embedded in existing tourism practices. On the other hand, tourism is also seen as providing the means to prioritise wellbeing while providing financial return to individuals and communities. While not a marine example, Ateljevic (2020) suggests that regenerative principles can be coupled with tourism to promote a more sustainable transition in which tourism ensures a demand for products from regenerative agriculture. Knowles (2019) sees similar potential in adventure tourism to target high-paying tourists with environmental interests who would invest in activities that enhance the environment while also contributing to the local economy.

Further literature addresses the impacts of ecosystem management on equality among resource users and visitors. In this context, tourism can play a role in exacerbating inequalities in communities resulting in resource use that causes environmental degradation. In an example from Peru, Gonzalez Velarde (2019) documents how the influx of tourism and the demands for coastal property development exploits regulation and policy that has not kept pace. This has negative consequences for local inhabitants who lose access to resources and for the unprotected environment. Morea (2021) shows similar impacts from sustainable tourism in Argentina that, despite contributing to protected area management, fails to contribute to the wellbeing of locals who do not participate in the tourism economy. The resulting social inequalities can also manifest within communities when tourism exacerbates existing social structures such as gender and race as reported by Johnson (2020) in Belize. The emphasis on environmental justice also appears in proposed solutions for ecosystem management, being an important aspect of considerations of 'resilience' in the shaping of nature-based tourism (Espiner, et al. 2017).

While there are well-documented instances of the potential for ecotourism and ecosystem management involving tourism to undermine social cohesion, they also provide the opportunity to enhance the role of communities in the governance of local environments. Giebels, et al. (2020) suggest that a primary challenge in facilitating active roles for communities in tourism and ecosystem management involves the lack of commensurability in their knowledge with that of the ecologist or the policymaker. According to these authors, research on transdisciplinary knowledge management provides key insights for addressing the misunderstandings that result for these different forms of knowledge. Such factors can be particularly significant in the context of cross-cultural tourism, as demonstrated in the distinction between the modern (tourist) and pre-modern (local) conceptions of landscapes in the experiences of the Olle Trail in South Korea (Nam & O'Reilly, 2020), that are also present in Pakeha and Māori conceptions of ecosystems (Kahui & Cullinane, 2019).

As with social equity concerns, the interactions of different forms of knowledge can have unexpected or negative consequences for communities. Doyon and Carbonell (2019), for example, document the changes in labour relations in the traditional fishing industry with the growing popularity of recreational fishing for tourists in Catalonia. Spalding (2020) examines the loss of local influence over resource governance associated with the contrasting knowledges of wealthy tourists settling in subsistence communities in coastal Panama. Mathis and Rose (2016) expose the political ecological constraints on Galapagos Islanders as a result of the conservation policies introduced to mitigate the impacts of tourism. On the other hand, where the knowledge of communities receives greater recognition, they can have more positive influence on ecosystem management decisions. A marine ecotourism example from Hawai'i (Heenehan, et al. 2015) shows that a local community is able to use its knowledge of dolphin behaviour to gain a more prominent position in ecosystem-based management related to cetacean tourism. These authors suggest that reference to Ostrom's (1990) common pool resource theory provides a good basis for facilitating the development of community-based conservation organisations as important collaborators in ecosystem management.

The analysis of the integration of tourism and ecosystem management overwhelmingly focuses on the social dynamics, despite the role of the physical and biological environment. Chakraborty (2020) argues that conventional approaches in tourism research focus on consensus in an effort to establish a shared understanding of tourism and its potential for success. It is argued that this focus fails to acknowledge non-humans who cannot be surveyed or interviewed with the result that the nuance and complexity of ecosystems is obscured. Singleton (2016) examines a particular case of the simplification of ecosystem relations associated with the promotion of mobulid (manta species) conservation through tourist engagement. While this effort has achieved benefits for the manta ray and fishing communities that use this resource, the narrow focus on a particular species has diminished awareness of the diversity among mobulid species and their distinct needs in terms of management. Singleton's research reinforces Chakraborty's (2020) assertion that non-humans fail to draw sufficient attention in current understandings of marine tourism from an EBM perspective. While literature in marine ecotourism points to the impact of visitors on marine mammals it usually focusses on a single species rather than broader effects on the overall ecosystem.

Academic literature increasingly recognises marine tourism as a practice of ecosystem management, but it is also always only a single element in that management. Thus, marine tourism must position its interests in relation to the objectives and interests of governments, other industries (such commercial fishing and aquaculture), and – perhaps most importantly in specific places – with the communities that have traditionally used the marine resources. Once that management engages with objectives of sustainability and resilience, and draws on ecosystem-based insights, additional lines of tension emerge as the desire for economic growth and development is considered alongside ecological and societal wellbeing. While these tensions point to the need to develop planning and engagement frameworks to facilitate the social negotiation of ecosystem management, there is also a significant gap in our understanding of how we integrate non-human stakeholders within management decisions. It is imperative that understandings of marine ecotourism be informed by research that treats

humans as co-participants in ecosystems with equal (as opposed to privileged) standing with non-human participants – and, thus, requires greater attention to the complex ecological interactions that comprise healthy and resilient ecosystems. These understandings must be incorporated into planning frameworks for both the tourism sector and the marine environments in which it is active.

Science provides a base of evidence for dialogue between stakeholders and scientists and creating conditions that enable cooperative behaviour is key to achieving an EBM approach (Delacámara, O’Higgins, Lago, & Langhams, 2020). EBM applied to marine ecosystems acknowledges social-ecological interactions and seeks policy making that is transparent, accessible to multiple stakeholders and that acknowledges place-based issues (Delacámara et al., 2020).

## Marine ecotourism in Aotearoa New Zealand – existing benchmarks

Most of Aotearoa New Zealand's coastal environment is accessible for recreation (Environment Foundation, 2015) and high-quality marine and coastal resources are essential for marine ecotourism in New Zealand (Market Economics, 2019). New Zealand's marine environment attracts both international and domestic visitors and is a key feature of the nation's visitor offer. Some sense of the importance of marine environments in tourism can be gained from cruise ship expenditure which alone totalled \$570 million in 2019 (Stats NZ, 2019). One in three (33%) international visitors undertook a scenic boat trip, half (50%) visited a beach, 24% viewed seals in their natural habitat and 14% viewed dolphins in 2019 (Stats NZ, 2019a). Te moana (the marine environment) is also important for domestic leisure with New Zealand's beaches, coastlines, and marine reserves being the most visited environments during the summer (Department of Conservation [DoC], 2021; Doc 2021). Reflecting the growing commercial footprint in conservation areas from 2000 to 2020, the number of enterprises operating in nature reserves and conservation parks in New Zealand rose 144% from 54 to 132 in 2020 (Stats NZ, 2020).

The majority of what we know about the management and structure of the marine ecotourism sector in New Zealand comes from studies conducted in the mid-1990s through to the early-2000s that focused on the national land and marine ecotourism sector (Orams, 2003; McKegg et al., 1998; Higham et al., 2001). These studies found marine ecotourism operations in New Zealand to be diverse, ranging from corporations turning over tens of millions of dollars and hosting tens of thousands of visitors through to owner/operator businesses with limited revenue streams (Orams, 2003). Orams (2003) citing McKegg's (1996) audit of marine tourism operators argued that most could actually be considered marine ecotourism operators. Dickey & Higham (2005, 14) confirmed "rapid development of commercial ecotourism in coastal and marine environments" in a further study of ecotourism operators in New Zealand.

To understand where the New Zealand marine ecotourism sector is currently situated, it is essential to look at where we are coming from and to establish a baseline. The last national stock-take of ecotourism in New Zealand focused on data from 1999-2004 and identified 245 ecotourism businesses out of a larger cohort of 476 nature-based operations (Dickey & Higham, 2005). Ecotourism operations were found to be evenly split between the North and South Islands (120 and 124 respectively). There was evidence of more growth over five years in the South Island (+9.3%) than in the North (+2.2%).

Dickey & Higham (2005) found that ecotourism businesses tended to cluster in one district within a region and that marine ecotourism operators are often located around natural features and marine wildlife (McKegg, 1996). Marine ecotourism was discovered to be as significant as its terrestrially focused counterpart across the country (101 operators identified in each sector) with 30 operators offering a mixture of experiences (Dickey & Higham, 2005). Auckland, Waikato, Otago and Canterbury were highlighted as having the highest concentration of ecotourism businesses. These areas withal featured easy access to larger population centres and good linkages to tourism flows (Dickey & Higham, 2005). Marine

ecotourism in urban areas was also argued to be a potentially more environmentally sound due to the use of existing infrastructure to facilitate visitors, while the steadier flow of visitors throughout the year improved the economic viability of operators compared to those in remote settings (Lück & Highman, 2003).

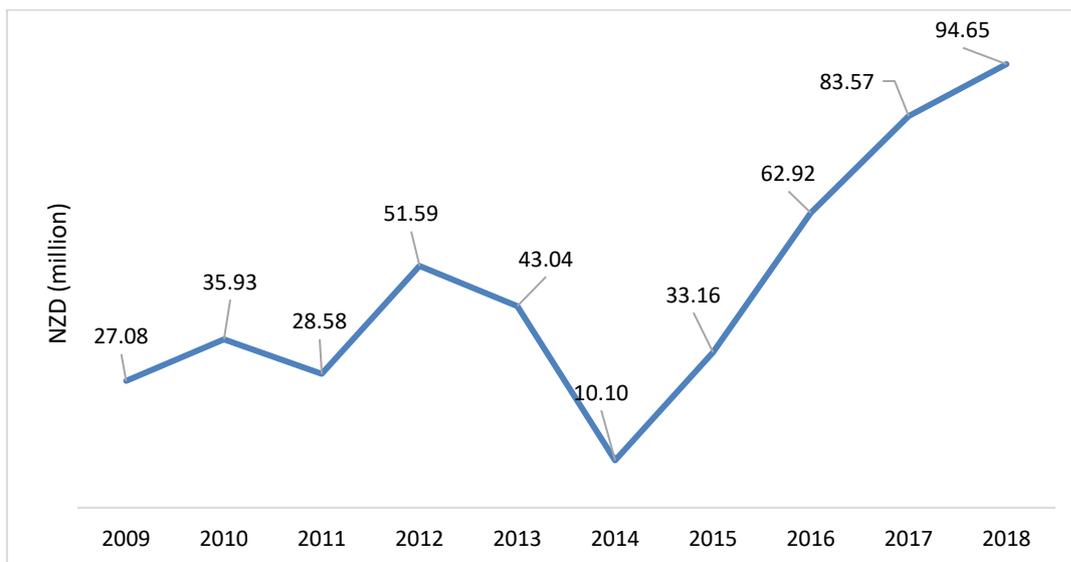
The spatial analysis of commercial ecotourism operators in Aotearoa New Zealand conducted by Dickey & Higham (2005) using 1999 data is a helpful baseline against which to compare past spatial trends with the current day (Appendix 2, 3). In terms of general ecotourism operations Otago and Canterbury in the South Island and Auckland and Bay of Plenty in the North Island had the greatest activity. McKegg (1996) found that marine tourism activities differed across regions in New Zealand, for example in Otago most operators noted marine mammal and seabird viewing as the key activities, as they did Kaikoura (Appendix 4,5). In the North Island most activities related to diving and fishing while Auckland stood out as having more sailing cruising and kayaking activities (Appendix 6). The Nelson/Marlborough region exhibited mixed activities and kayaking was not dominant at the time of the data collection (Appendix 7). Coastal and marine wildlife species targeted by marine tourism operators were dolphins, whales, New Zealand fur seals, and gannets, with albatross being located only in the South Island. Market Economics (2019) mapped 250 marine tourism operators (Appendix 8) with spatial distribution on a high-level showing consistency with the earlier mapping by Dickey and Higham (2005).

The New Zealand national ecotourism operator database started at Otago University has not been updated or live since 2004 (Dickey & Higham, 2005). The authors noted challenges in keeping data up to date mostly due to ecotourism being a dynamic sector with high levels of business attrition and new enterprise entry. This time-lag leaves a considerable gap in information on the marine ecotourism sector in 2021 and points to the necessity of having a database that can be sustained over time, something this National Science Challenge Sustainable Seas programme of research seeks to address.

## Impacts of the Aotearoa New Zealand marine tourism sector

Marine tourism and recreation is defined by Stats NZ as “marine equipment retailing” and in 2018 was valued at NZD 94.65 million, employing 1,317 people (Stats NZ, 2018). Prior to Covid-19 the value of marine tourism and recreation was rising rapidly in Aotearoa New Zealand- a nine-fold increase from 2014-2018 reflecting in part the global and national tourism boom (Figure 2).

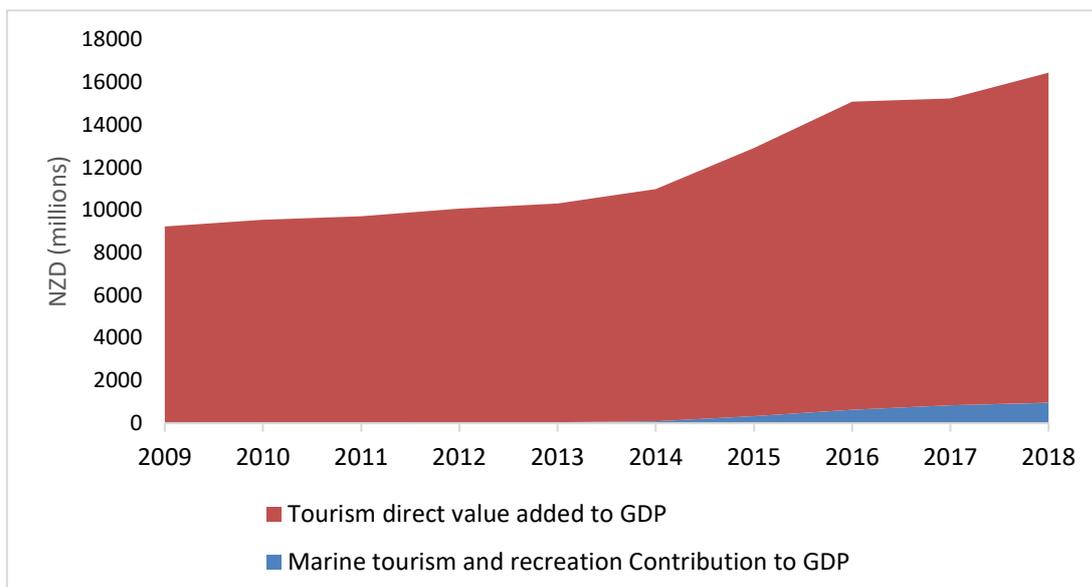
Figure 2: Marine tourism and recreation value added (2009-2018)



Source: Stats NZ (2018)

The marine tourism and recreation sector makes up a relatively small part of New Zealand’s visitor economy using the current Stats NZ definition (Figure 3).

Figure 3: Tourism direct value added to GDP and marine tourism and recreation contribution to GDP



Source: Stats NZ (2018)

Stats NZ acknowledge that the current definition of marine tourism and recreation as “marine equipment and retail renting” is too narrow and that a wider definition is needed (Market Economics, 2019).

Market Economics (2019) provide a far broader definition of ‘coastal tourism’ that includes marine tourism operators, nature-based tours, the cruise industry, domestic coastal holidays and ancillary international tourist spend within 1km of a coastal area. The value added with the expanded definition of ‘coastal tourism’ was estimated to be \$3,023 million in 2017 supporting 43,813 jobs (Market Economics, 2019). Clearly these figures will have been heavily impacted by Covid-19 as international air travel to New Zealand has reduced drastically and cruise visits have ground to a total halt.

Somewhat perplexingly the \$3,023 million figure is nearly \$70 million above the tallies provided for each segment that comprises coastal tourism in the Market Economics (2019) report (Table 2). With no explanation available it is difficult to know the exact figure to use – highlighting again the challenge of getting a true sense of the economic value of the coastal and marine sector.

*Table 2: Coastal Tourism Value to New Zealand*

<b>Segment of coastal tourism</b>	<b>Estimated direct value added (NZD)</b>	<b>Estimated supported employment</b>
<b>Marine tourism operators</b>	\$120 million	1,500
<b>Cruise industry</b>	\$300 million	6,100
<b>Ancillary International Tourism</b>	\$783 million	9,540
<b>Domestic coastal holidays</b>	\$1,745 million	26,000
<b>Total</b>	<b>\$2,948 million</b>	<b>43,140</b>

Source: Market Economics (2019)

It should be noted that none of the previous studies on the structure and size of the ecotourism sector in New Zealand (which have also looked at the sub-set of marine ecotourism) have attempted to truly estimate the value of it to the national economy. Market Economics (2019) came closest when they estimated the value of marine tourism operators.

Some sense of the relative global significance of New Zealand’s marine tourism sector can be seen in Table 3. Aotearoa’s tourism industry comprised 0.13% of global tourism GDP in 2019 (World Travel and Trade Council, 2019) (Table 3). Taking the most estimates from the OECD (2016) of the global value of marine tourism and using Market Economics (2019) estimates of coastal tourism’s size to equate to New Zealand marine tourism, we see that in very crude terms the country accounts for around 0.6% of the world share. Looking at the sub-sector of marine ecotourism in more detail, National Geographic (2016) estimated it was worth USD 50 billion. If we look at marine tourism operators from the Market Economics (2019) study (which

excludes cruise ships) as a crude estimate of marine ecotourism activity in New Zealand it can be seen that New Zealand makes up 1.8% of the global total of marine ecotourism share of value.

The figures shown in Table 3 undoubtedly overstate the true value of New Zealand’s ecotourism and marine tourism in a global setting. However, they serve to reveal the very real challenges faced in estimating the true value of marine ecotourism both nationally and around the world. A lack of a single agreed definition, values calculated across different time periods using different methods, and a lack of robust time series data, mean that any estimates must be viewed with extreme caution. While it is extremely unlikely that New Zealand would account for nearly 2% of global marine ecotourism activity by value it is certainly likely that the sector has a more significant slice of global market share than several other forms of tourism in the country.

Table 3: Crude Estimates of world vs New Zealand tourism/marine tourism value using available figures

Value Global (USD Billion)	Value Global (USD Billion)	Value NZ (USD billion)	NZ % share of global value
Tourism Value	8900	11.2	0.13%
Marine tourism	390	2.19	0.6%
Marine ecotourism value*	50	0.9	1.8%

Table 3 Sources/Notes: \*Ecotourism value in New Zealand is estimated as marine tourism operators excluding cruise ships taken from Market Economics (2019) estimations. Tourism value world & NZ: World Travel Tourism Council (2019) Economic Impact Report; World Travel Tourism Council (2020) New Zealand Annual Research: Key Highlights - data 2019. Marine tourism Global Value: OECD (2016) Authors’ calculations based on data from various periods - OECD (2014), World Bank (2013), World Bank WDI (n.d), UNWTO (2011). Marine tourism NZ value: Market Economics (2019) coastal tourism value – based on StatsNZ 2018, Cruise Association data & authors own calculations. Marine ecotourism global value: National Geographic (2016) – data method/collection unspecified. Marine ecotourism NZ value: Market Economics (2019) contribution of marine tourism operators (excluding cruise ships) n=250 (data collection method unspecified/unknown). Note NZD value converted to USD March 2021 exchange rates.

Several studies have been completed in New Zealand on the value to regions and localities of ecotourism and the wider economic benefits associated with marine mammals, pelagic birds, and marine protected areas:

- Leigh marine reserve - Rodney (Hunt, 2008) – the value to the marine reserve to Rodney (North Auckland District) was estimated in 2008. In the study 375,000 visitors were recorded with the marine reserve generating \$18.6 million per year, with \$12.1 million direct spend and the rest flowing indirectly to the district economy.
- Hector’s dolphins - Akaroa (Yeoman, Rodriguez & Fairgray, 2018): seven ecotourism operators, employing 40-60 staff with a total turn-over between \$6-8 million per annum was estimated across all operations. The study found that ecotourism (tour operators and tourist spend) generated the economic impact equivalent of \$19.5 million in value added to the Canterbury economy and sustained the equivalent of 416 jobs.

- Royal albatross and yellow eyed penguins – Otago Peninsula (Tisdell, 2007): It was estimated that as a result of the presence of these species and their use for tourism, expenditure of over \$100 million annually was generated in the Dunedin regional economy (directly or indirectly) and that 800-1000 full-time equivalent jobs were created.
- Whales – Kaikōura (Lück & Altobelli, 2009): this study highlighted the pivotal role of marine ecotourism development in local economic regeneration in the town and surrounding area and in particular the positive impacts on Māori social and economic development.
- Hauraki Gulf Marine Park – Auckland (Barbera, 2012): nature-based tourism in Auckland's Hauraki Gulf generated 15,742 jobs and a total GDP impact of \$937 million with an estimated 2.9 million visits in 2008.
- Poor Knights Islands Marine Reserve – Tutukaka and Rakiura/Stewart Island (New Zealand Tourism Research Institute, 2009): For every 1,000 visitors to Tutukaka a local economic injection of \$306,106 was observed and for every 1,000 visitors to Rakiura/Stewart Island a local economic injection of \$365,978.

Stepping beyond estimates of economic value, NIWA (2012) assessed the ecological risks of marine ecotourism activities, in particular those on the water, under the water and involving in-situ sea life encounters. None were deemed to be of extreme risk to the marine environment however ship strikes to marine life, including protected species, were deemed to be high risk and quite likely to occur. Similarly, bird strike collisions with boats were seen to be a high risk and a likely occurrence. Sub-surface noise and activity were deemed to be a moderate risk. Collisions with sleeping marine mammals, propeller damage to turtles, and anchor damage to coral are documented impacts of marine ecotourism that need to be carefully managed (Department of Conservation, n.d). Diving also needs to be well managed to ensure that divers do not accidentally disturb coral or touch or interfere with marine life (Agardy et al, 2018).

Whale Heritage Sites are an example of sustainable marine management at a regional or localised scale that is designed to support and promote responsible Cetacean viewing. Criteria to mitigate risks and raise the profile of marine conservation and research are put in place in these certified Whale Heritage Sites (Case 7).

## Case 7: International standards – responsible cetacean tourism and marine management

*Whale Heritage Sites* are certified by the World Cetacean Alliance as a world class whale or dolphin watching destination. Responsible whale watching tourism will grow and is preferable to extractive hunting activity. In response to growing demand for whale watching, *Whale Heritage Sites* aim to develop it in a way that is sensitive to the environment, the welfare of the animals involved and the livelihoods of local communities. It seeks to promote responsible whale watching tourism by mitigating the known risks to marine mammals through this activity.

*Whale Heritage Sites* must meet criteria: encouraging respectful human-cetacean coexistence, celebrating cetaceans, environmental social and economic sustainability, research education and awareness. There are currently four Certified *Whale Heritage Sites* (Hervey Bay, Australia; The Bluff, South Africa; Tenerife La Gomera, Spain; and Dana Point, USA). Each site is unique therefore the required criteria is adapted to suit the individual context and means to demonstrate compliance are mutually agreed.

On-site audits ensure that standards for the certification are being upheld. Along with economic benefits such as a higher profile the process of becoming a designated *Whale Heritage Site* claims to have a positive impact on supporting activities including fishing and diving communities. With mitigating risks to whales the certification also encourages research including climate change resilience and links to a global network of marine scientists



Source: [whaleheritagesites.org](http://whaleheritagesites.org). Photo credit: Hanna Obersteller.

Studies on the socio-cultural value of marine ecotourism that stretch beyond the economic dimensions are sporadic and usually case based. The socio-cultural value of marine ecotourism can be seen clearly in Māori led examples of marine ecotourism. For example, Māori led marine ecotourism has been seen to generate 'well-th' (defined as social physical and mindful wellbeing in the social structure of the iwi) (Cave & Dredge, 2020), and support traditional guardianship of marine environments which shape cultural wellbeing (Amoamo, et al., 2018). Indigenous led marine ecotourism that safeguards marine environments can also be argued to pay back social value to the community, contributing to protecting coastal and marine environments (Prasetyo et al., 2020) that are vital to the wellbeing of New Zealander's (Department of Conservation, 2015).

## Management of marine ecotourism in New Zealand

Despite growing environmental pressures caused by increased visitor numbers, short term decision making and a lack of ownership of the long-term impacts of growing tourism is seeing natural environments suffer around the world and in New Zealand (Nikolova, 2020; PCE, 2021).

Tangata whenua have a deep connection to coastal and marine landscapes (Peart, et al., 2021). Māori have rangatiratanga over marine taonga under the Treaty of Waitangi and it has been successfully argued that this relates to these resources for economic development as well, as is the case of Ngāi Tahu and Whale Watch Kaikōura, the sole beneficiary of a DoC concession for whale watching in the ocean in Kaikōura (Orams, 2003). In the more recent case of Ngāi Tai Ki Tāmaki v Minister of Conservation the Ngāi Tai Ki Tāmaki Tribal Trust challenged the issue of concessions to Fullers Group and the Motutapu Island Restoration Trust and argued that no other operators should be granted access in order to preserve opportunities for the Trust to develop tourism activities on the Hauraki Gulf islands of Rangitoto and Motutapu (Peart, et al., 2021). The Marine and Coastal Area (Takutai Moana) Act 2011 protects the interests of all New Zealanders in the coastal area and recognises the customary interests of Māori in the coastal and marine environment. Under the Act iwi, hapū or whānau groups can gain recognition of two types of customary interests: a customary marine title or protected customary right. Relating to the management of marine ecotourism, this Act grants iwi the right to accept or decline permission for conservation including establishing a marine reserve or granting concessions. There is also a right to be engaged with, and notified of, marine mammal watching permits issued by DoC.

The Department of Conservation and Tourism New Zealand (both Crown agencies) play a role in the utilisation and management of marine resources for tourism at a national level (PCE, 2021; Orams, 2003). Tourism New Zealand's legislated mandate is to attract international visitors to New Zealand. Marine ecotourism and high-quality natural attractions are used for promotion for marketing purposes by Tourism New Zealand (TNZ), but they do not play a role in the management of sound ecological practices for marine ecotourism operators (PCE, 2021; Peart et al, 2021). This disconnect between destination marketing organisations (TNZ, regional and local tourism organisations) and those responsible for the management of common resources lies at the heart of many current issues and pressures on the tourist system (Nikolova, 2020).

The New Zealand government did not play a lead role marine ecotourism operators accreditation two decades ago (Orams, 2003) and continues to have a limited direct role to this day. Qualmark is owned by Tourism New Zealand and backed by other industry organisations. Qualmark is New Zealand's official tourism quality assurance organisation who have sector specific assessment criteria focused on environmental sustainability, health and safety and the customer experience. The voluntary DoC run SMART Operator programme which aims to promote responsible behavior around dolphins, whales and seals by boat operators also operates.

Several authors in the early 2000s (Hall, 2001; Dickey & Higham 2005) raised the alarm that New Zealand's positioning as a nature-based tourism destination coupled with increasing visitor numbers and a lack of a management framework could see the natural environment being degraded. A comprehensive national overview of the New Zealand tourism system confirmed that pressures on the environment were fast growing to unsustainable levels that the industry has largely failed to protect natural landscapes including seascapes (PCE, 2019; Peart et al., 2021).

The Department of Conservation is the most important government agency in terms of the regulation of supply and management of marine ecotourism in New Zealand, charged with the conservation and sustainable use of Crown lands, including all foreshore (below the mean waterline) and seabed within the marine and coastal environment. Concessions issued by DoC relating to coastal and marine ecotourism cover accommodation and commercial recreation/tourism. In June 2020 there were 1,100 tourism concessions (for both land and water activities) which generated \$21 million (an estimated reduction of \$6 million from the previous year due to Covid19) (Peart et al., 2021).

DoC faces a resource management dilemma having to deal with both the protection of natural environments and creating income from through tourism operator concessions (Orams, 2003). Recently calls have been made to tighten rules around commercial tourism activity on conservation land and water in some areas (PCE, 2021) and there are issues with enforcement of concession requirements such as limiting numbers (Peart et al., 2021). The current concession framework is being reevaluated in the light of the Ngāi Tai Ki Tāmaki Tribal Trust v Minister of Conservation Supreme Court decision to shift from mitigating negative impacts to generating positive impacts for environments and to better reflect Treaty obligations plus offer more flexibility for the tourism industry (Peart et al., 2021).

The recent Supreme Court decision is likely to support greater iwi and hapu tourism activities on conservation waters. One of the nine 'key shifts' in the new Department of Conservation Heritage and Visitor Strategy (2021) is to "develop a diverse and consistent range of visitor experiences". To do this DoC (2021,10) propose to "develop a set of national experiences that reflect the diverse preferences and needs of visitors ensuring that there are consistent standards for management, visitor safety is prioritised and opportunities for visitors to contribute to conservation are developed". What this means for marine ecotourism activity is unclear at this early stage. Marine ecotourism is not a sub-sector especially mentioned in the new DoC Heritage and Visitor Strategy, yet the document has committed to seeking out innovative opportunities to partner with tangata whenua on sustainable visitor experiences and activities (DoC, 2021).

There is no national ecotourism strategy for New Zealand to implement ecotourism in marine or land environments, as opposed to neighboring Australia, which has national and, in some cases, regional (e.g. Queensland) ecotourism strategies, training and accreditation programmes. For example, the Australia Nature and Ecotourism Accreditation Program audits and regulates compliance with best practice for marine and land-based ecotourism operators.

While accreditation schemes have merits, they often exclude smaller operators due the amount of paperwork and cost involved, and Fennell (2020) reports that ecotourism operators

often prefer to 'self-regulate'. However, accreditation may grow in importance for marine tourism operators if recommendations are taken further to link finance provision to accreditation (UNEP, 2021). Reflecting the need for a coordinated approach to tourism in sensitive marine environments there is currently a Tourism Management Action Strategy underway for the Great Barrier Reef in Australia which has a vision to provide "management that delivers ecologically sustainable and culturally sensitive tourism now and into the future through engagement with the Reef tourism industry, Traditional Owners and other partners that supports innovative world leading experiences" (Commonwealth of Australia, 2021, 17).

Information to manage ecosystems is often locally based and is best managed there, yet there is a need to pool knowledge and perspectives across different levels to enable information flows and collaborative planning (HM Treasury, 2021; Cater & Cater, 2007). Communities and destinations are best placed to do much of this, but the boundaries may be contested. Destination management plans have an important role to play in the tourism system with local councils being the natural fit to facilitate the process, being resourced to serve their communities, rather than regional tourism organisations who tend to have a growth focus and less direct link to local issues and concerns (PCE, 2021).

Regional Councils issue resource consents under the Resource Management Act (RMA) for marine and coastal activities that are likely to have a significant environmental impact. The Resource Management Amendment Act 2020 makes updates to consenting, enforcement and environmental court provisions within the RMA. Territorial Local Authorities manage land use above the high-water mark, so shore-based facilities are subject to local by-laws. Destination management plans are an important tool when used correctly to identify opportunities to develop positive connections between communities, mana whenua and natural environments. These tools would be more effective if linked to statutory plans such as the RMA and the Conservation Act (Peart et al., 2021). While some examples of community collaboration have been seen in long term environmental planning, approaches have mainly been 'top down' when it comes to local tourism development (PCE, 2021).

Partnerships and other forms of collaboration are important to ensuring marine ecotourism contributes positively to the marine environment, especially in the provision of infrastructure and market access (Agardy et al., 2018; Phelan et al., 2020). There is little evidence of formal collaboration across the marine ecotourism sector in the literature except for the New Zealand Sea Kayakers Association who have a voluntary code of standards for operators. An example of initiatives to try and achieve scale of marine ecotourism past local boundaries and incorporate ocean literacy into destination planning is outlined in Case 8.

## Case 8: Collaboration to scale and connect marine ecotourism

*WILDSEA Europe* is a network of marine ecotourism operators and destinations working together to curate a marketplace of the best marine ecotourism activities in Europe for visitors. They represent a pan-European network of tourism operators who actively conserve the ocean through sustainable, responsible tourism. It is cofounded by the European Union.

The WILDSEA mission emphasises empowering small, local businesses of coastal communities, supporting sustainable livelihoods, enhancing ocean literacy through citizen science and preserving marine ecosystems.

WILDSEA.eu is a result of "Project WILDSEA Europe", a European, public-private cooperation effort initiated in June 2015. Initiatives include The Wildsea Atlantic Ocean Heritage Route ("[WAOH! Route](#)") is the first, European, **Sustainable Diving Route** connecting world-class diving sites from the extreme south in Portugal and Spain to the far north, encompassing Ireland and the UK. The route hopes to move 'sun and sea' visitors to more immersive experiences and to inspire new business models that attract snorkel and diving tourists and also whale watchers.

WILDSEA provides a trail aimed at linking marine ecotourists across Europe and also builds capacity in 'Ocean Literacy' across Destination Management Organisations so that they are able to apply best environmental practice in marine ecotourism management and development.

The screenshot shows a website interface for finding marine adventures. At the top, there is a search bar with a magnifying glass icon and the text "Find your next marine adventure in Europe". To the right of the search bar are two navigation arrows. Below the search bar, there are four featured activity cards, each with a price tag in a pink box, a title, location details, and a star rating.

Activity	Price	Location	Rating
Seville by Kayak Guided Tour	€40.00	SPAIN > ANDALUSIA	★★★★★
Dolphin and Whale Watching Tour in Madeira	€35.00	PORTUGAL > MADEIRA ISLANDS > MADEIRA	★★★★★
Seal Watching Trip	€20.00	IRELAND > COUNTY DONEGAL > GAELTACHT AND DONEGAL ISLANDS > THE GAELTACHT AND DONEGAL ISLANDS	★★★★★
Algarve Caves & Wild Beaches Kayak Tour	€35.00	PORTUGAL > ALGARVE > PORTIMAO	★★★★★

Source: Wildsea Europe

Policy and management interventions are necessary for the sustainable development of marine ecotourism (Saidmamatov et al., 2020; Hall, 2001; Agardy et al., 2018). Ecotourism policies are important to balance economic social and environmental elements important to the industry, yet too often the economic is stressed at the expense of social and environmental components (Fennell, 2020). Both Orams (2003) and Dickey & Higham (2005), writing about legislation required for the sustainable development of the marine ecotourism sector, saw the New Zealand Ocean Policy as a key piece of legislation. The Ocean Policy Initiative in 2003 was not continued, and marine ecotourism seems to have languished from a policy perspective since then (Scott, 2021). The Environmental Defense Society is currently working on research looking at the future of ocean management in Aotearoa New Zealand in the 'Ocean Reform Project' running over 2020/2021 and this will include a closer review of marine protected areas.

## Conclusion

Marine ecotourism is complex and cuts across multiple sectors, this requires that a holistic view be taken to its planning and management. Despite a significant amount of papers, reports, frameworks and literature relating to sustainable and regenerative tourism, evidence suggests that climate change and broader SDGs have not become a priority for tourism policy-makers (UN, 2020). A review of New Zealand tourism policy found that two-thirds was directed at growing visitor numbers (PCE, 2021). While \$200 million was spent on tourism growth only \$50 million was allocated to associated environmental infrastructure to cope with such growth (PCE, 2021).

There are growing calls for regenerative principles to be applied to rebuild a more sustainable tourism system, and well managed marine ecotourism has the potential to be a significant part of this. After the Covid-19 pandemic demand for marine ecotourism will increase but this must be carefully managed to ensure that it delivers benefits to local communities and contributes to a healthy marine environment. To accomplish this marine ecotourism needs to be factored into ecosystem-based management that takes local community needs and those of non-humans into account. There is a pressing need to examine alternative economic models that prioritise the environmental and social dimensions as much as the economic including by looking to indigenous led examples of marine ecotourism development and management.

Local needs must be taken into account by planners, and appropriate policy instruments and indicators must be based on community development requirements (Hall, 2001; Cater & Cater, 2007). Likewise, when developing marine ecotourism policy, operators should not be viewed as mere stakeholders but be active in shaping policy and disseminating best practice (Dowling & Fennell, 2003).

A lack of reliable and consistent information on marine ecotourism industry characteristics and its social, economic, cultural and environmental impacts, impedes effective decision-making in New Zealand, creating challenges for national level policy and hindering local scale initiatives and investment. Policy and governance of the sector has languished since the failed Ocean Policy initiative in the early 2000s and there remains a lack of a management framework to enable best practice. Studies of the economic value of the marine ecotourism sector are localised and often adopt different foci and methods. Ecological impacts have been studied at national and local levels and have been largely focused on human interactions with the environment, for example boat /anchor damage to coral, or the effect of humans on animal behaviour.

There is a need to examine local cases to be able to take a more holistic view of marine ecotourism and how it can achieve sustainable development imperatives. Findings from both the local and the national levels need to scale and inform one another if we are to better understand how the marine ecotourism sector contributes to a blue economy and community wellbeing in Aotearoa New Zealand.

## Appendix

## Appendix 1: International blue economy initiatives and marine ecotourism

There are several international projects aimed at engaging marine ecotourism and the blue economy, these include investments in research, the development of initiatives in assessment, monitoring and mapping and also advocacy.

Name / Main Funder	Type	Scale
PROBLUE / International Finance Corporation/World Bank	Research & implementation	International
<b>Description</b>		
<p>PROBLUE Healthy Oceans, Healthy Economies, Healthy Communities is a World Bank led multi-donor initiative aimed at developing healthy marine and coastal resources with the vision of the blue economy at its heart. To achieve the vision the PROBLUE blue economy action plan incorporates SDG 14 across four focus areas.</p> <ol style="list-style-type: none"> <li>1. Management of sustainable fisheries and aquaculture</li> <li>2. Addressing threats to ocean health such as marine pollution</li> <li>3. Sustainable development of marine sectors including tourism, maritime transport and renewable energy</li> <li>4. Building government capacity to manage marine resources.</li> </ol> <p>PROBLUE uses the Blue Economy Development Framework which are a set of analytical tools and technical assistance to help countries define and roadmap to a diversified and sustainable blue economy. The toolkit includes data, analysis and dissemination (including natural capital accounting frameworks and integrated planning of maritime sectors), policy, institutional and fiscal reforms and fostering investment. Currently initiatives in marine tourism are focussed on assessing the impact of Marine Protected Areas (MPAs) on regional economies.</p> <p>Website: <a href="https://www.worldbank.org/en/programs/problue/overview">https://www.worldbank.org/en/programs/problue/overview</a></p>		
Name / Main Funder	Type	Scale
Ocean Health Index (OHI) / Pacific Life Foundation	Monitoring	International
<b>Description</b>		
<p>Ocean Health Index (OHI) is a global tool designed to assess the state of marine eco-systems and to create open data to support marine policy formulation utilising an EBM approach across scales from local to national. The OHI is assessed across 10 elements: food provision, artisanal fishing opportunities, natural products, coastal protection, sense of place, livelihoods and economies, tourism and recreation, clean water and biodiversity. The OHI index rates each element on a score from 0-100 with 100 representing the best utilisation of resources that does not harm the ecosystem. For tourism and recreation, the ideal approach is to find out how the ocean is used and enjoyed by visitors and locals and to then compare this against locally informed measures of tourism sustainability.</p> <p>Website: <a href="http://www.oceanhealthindex.org">www.oceanhealthindex.org</a></p>		

Name / Main Funder	Type	Scale
Blue Economy Cooperative Research Centre (CRC) / Australian Government	Research	National (Australia)

#### Description

Australia based initiative that brings aquaculture and renewable energy sectors together to address the challenges of offshore food and energy production. While there is no marine ecotourism specific component the RP4 Environment and Ecosystem program has relevant tools for ecotourism related projects, in particular:

- RP4 *Tools to assess cross sector interactions* – “identify synergies and trade-offs for cross sector impacts and develop spatial plans that maximise social, economic and environmental outcomes”
- 4.20.006 *Risks and opportunities for the blue economy* – risk register of interrelated risks to BE including policy
- 5.20.001 *Economic assessment of the blue economy* –including ecosystem service value & natural capital accounting frameworks with associated recommendations.
- 5.20.002 *Integrating BE with governance integrity research* – certifications, social license (from UN Global Compact).
- 5.20.004 *Policy and regulatory research plan* – identify short, medium and longer term needs and priorities
- 5.20.005 *Ethics values and social license in the BE* – ethical values at stake in the BE
- 5.20.007 *Mapping and analysis of BE policy and legislative arrangements* – map of existing policy and legislative arrangements as they relate to BE uses, including cross sector analysis to identify gaps.

Website: [www.blueeconomycrc.com.au](http://www.blueeconomycrc.com.au)

Name / Main Funder	Type	Scale
Mapping Ocean Wealth / The Nature Conservatory	Mapping	International

#### Description

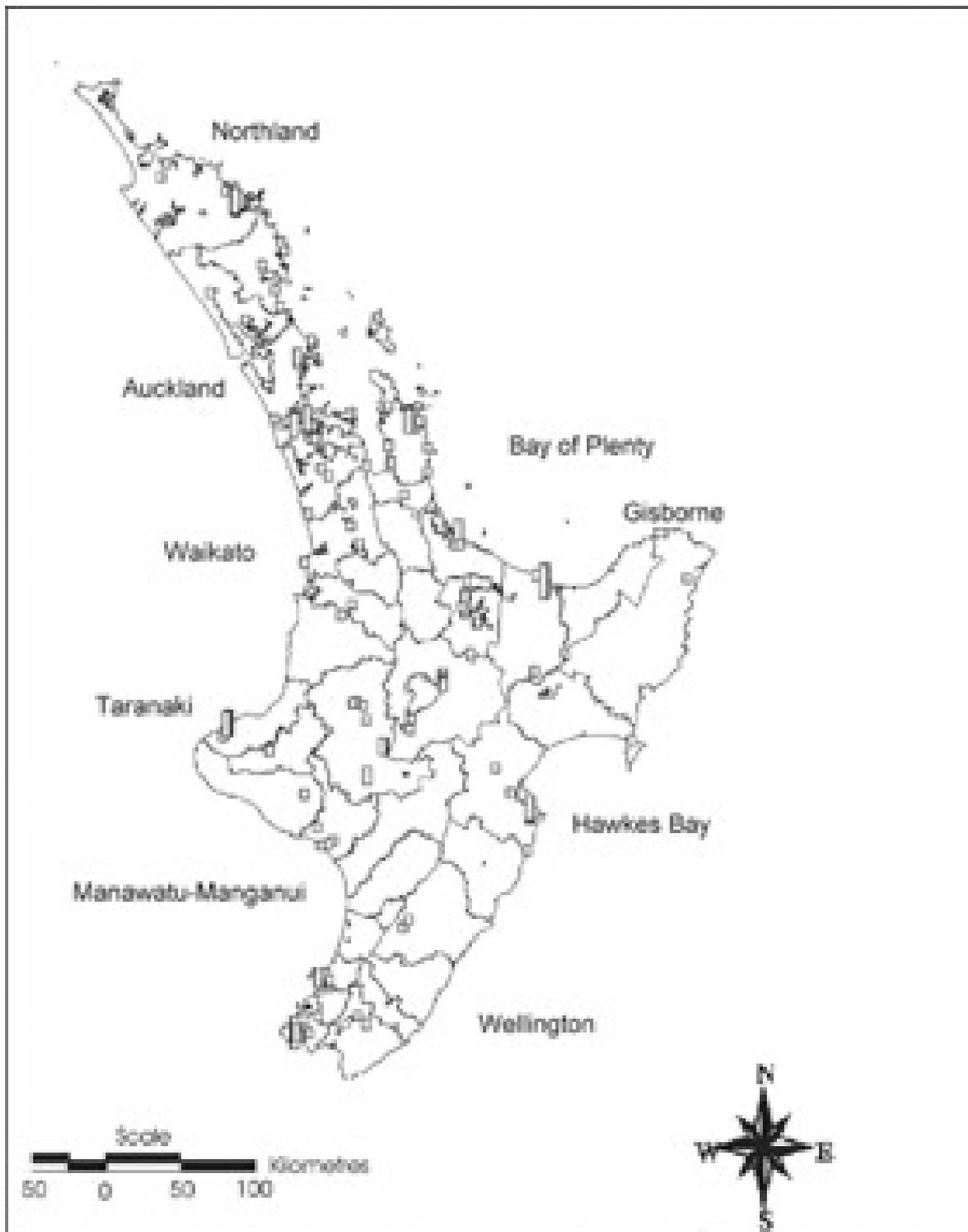
Mapping Ocean Wealth is an initiative of The Nature Conservatory that brings together science and policy work to quantify marine natural capital as an economic asset to inform better decision making. The purpose of the Mapping Ocean Wealth tool is to visualize and simplify global, regional, and local ecosystem benefits for use in natural resource planning and policy decisions. It takes an EBM approach to ensure that ecosystem services are integrated into decision making. It has been applied to marine ecotourism, providing an estimate of the economic value of coral reefs and winning the WTTC award Tourism for Tomorrow Innovation Award in 2017 for highlighting tourism contribution to the economy and environment.

Website: [www.oceanwealth.org](http://www.oceanwealth.org)

Name / Main Funder	Type	Scale
Seas Oceans and Public Health in Europe (SOPHIE) / European Union	Research & implementation	Regional (Europe)
<b>Description</b>		
<p>SOPHIE is a research programme looking at how the ocean and human wellbeing is interlinked and focusses on marine citizen science projects.</p> <p>In the tourism arena, a programme tested whether a network of skilled ‘Tourism Agents’ can effectively contribute to monitoring areas identified in the Marine Strategy Framework Directive and the Blue Health Survey. The research team created a list of existing tourism resources and a video series called ‘7 reasons why we should love the ocean’, all helping to increase awareness of oceans and human health amongst tourists, visitors and local communities.</p> <p>Two key marine tourism citizen science projects involved nearly 100 marine tourism providers across Europe, with groups in Greece, Ireland, Portugal, Spain and the UK enrolling their customers and professional teams in two initiatives:</p> <ol style="list-style-type: none"> <li>1. “Mapping Ostreopsis”, exploring how coastal tourism operators might provide early warning for issues such as harmful algal blooms.</li> <li>2. “Blue Effect”, an initiative aiming to understand how marine ecotourism can impact the wellbeing of participants and their attitude towards environmental challenges.</li> </ol> <p>Website: <a href="https://sophie2020.eu/about/">https://sophie2020.eu/about/</a></p>		
Name / Main Funder	Type	Scale
Blue Prosperity Coalition / Multiple partners	Monitoring / advocacy	International
<b>Description</b>		
<p>A coalition of NGO’s, academic institutions, foundations, and other organizations working together to assist committed governments in developing and implementing sustainable marine spatial plans to protect the environment and improve the economy at the same time. Resources are available for marine spatial planning something that if adopted at a national level would involve marine tourism.</p> <p>Website: <a href="http://www.blueprosperity.org">www.blueprosperity.org</a></p>		

**Appendix 2: Spatial analysis of ecotourism operators by region – North Island c. 1999**

Source: Dickey & Higham (2005)



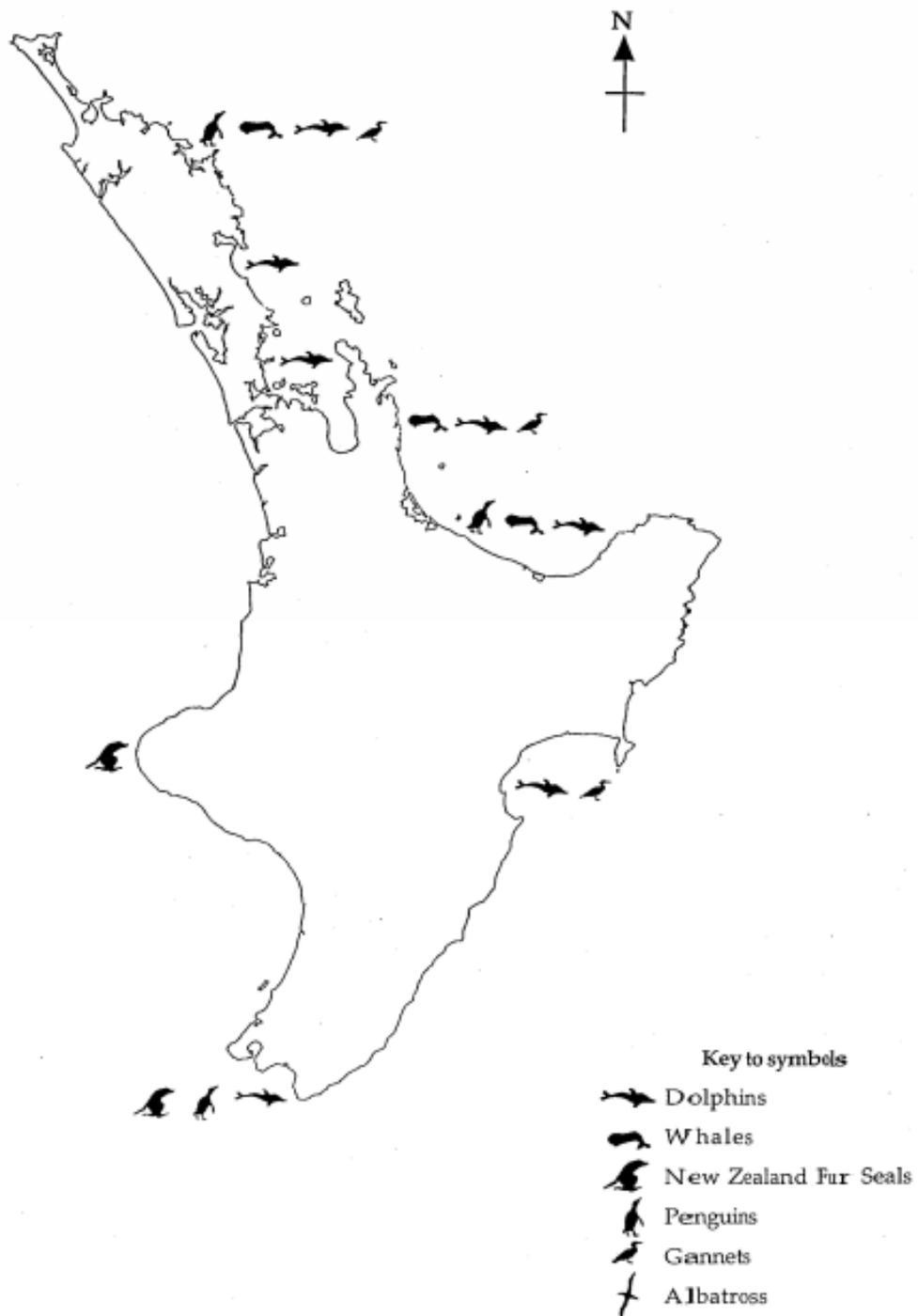
**Appendix 3: Spatial analysis of ecotourism operators by region – South Island c. 1999**

Source: Dickey & Higham (2005)



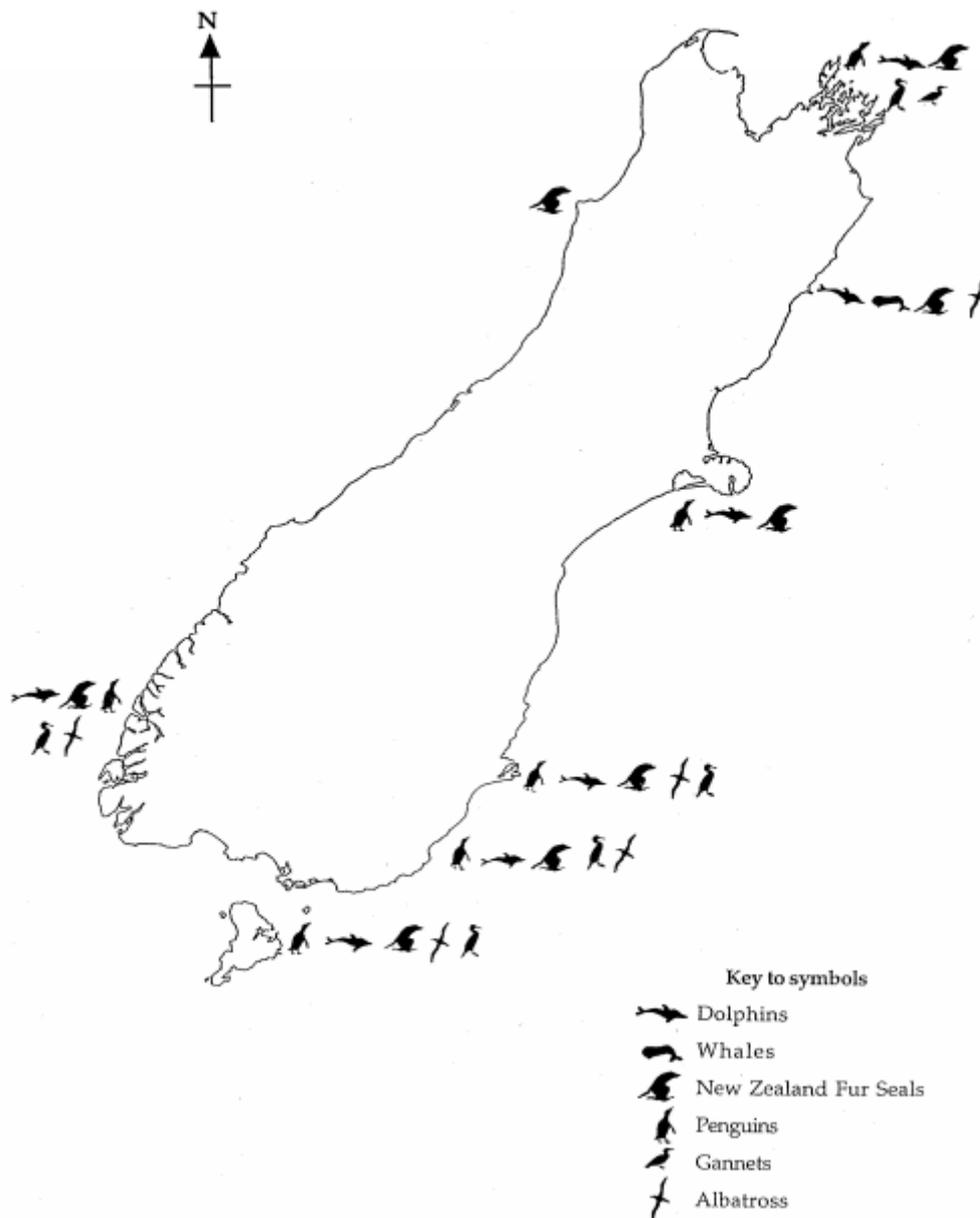
**Appendix 4: Location of commercial marine tourism operators which note wildlife targeted by marine tour operators – North Island**

Source: McKegg (1996)



**Appendix 5: Location of commercial marine tourism operators which note wildlife targeted by marine tour operators – South Island**

Source: McKegg (1996)



**Appendix 6: Type of activities incorporated in marine based operations in the North Islands key marine tourism locations. Bol = Bay of Islands – North Island.**

Source: McKegg (1996)

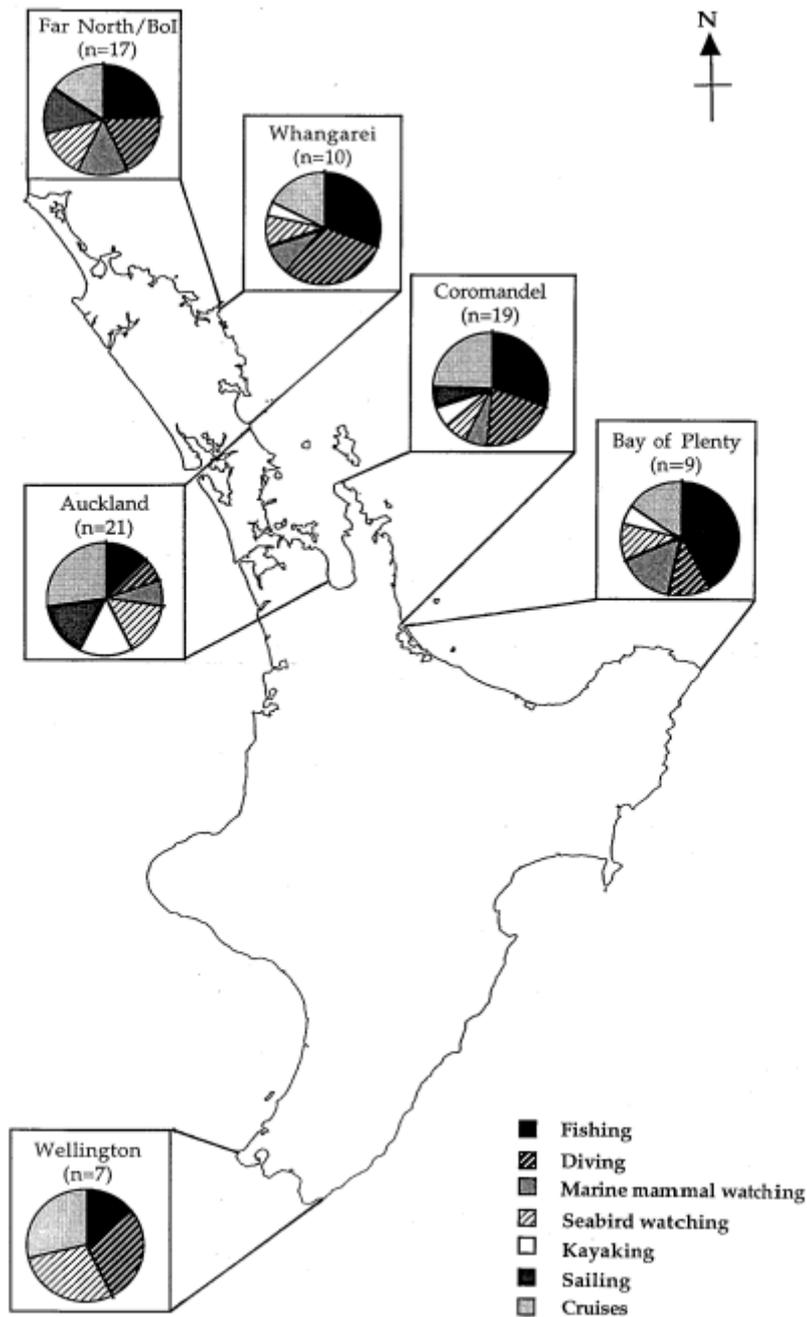
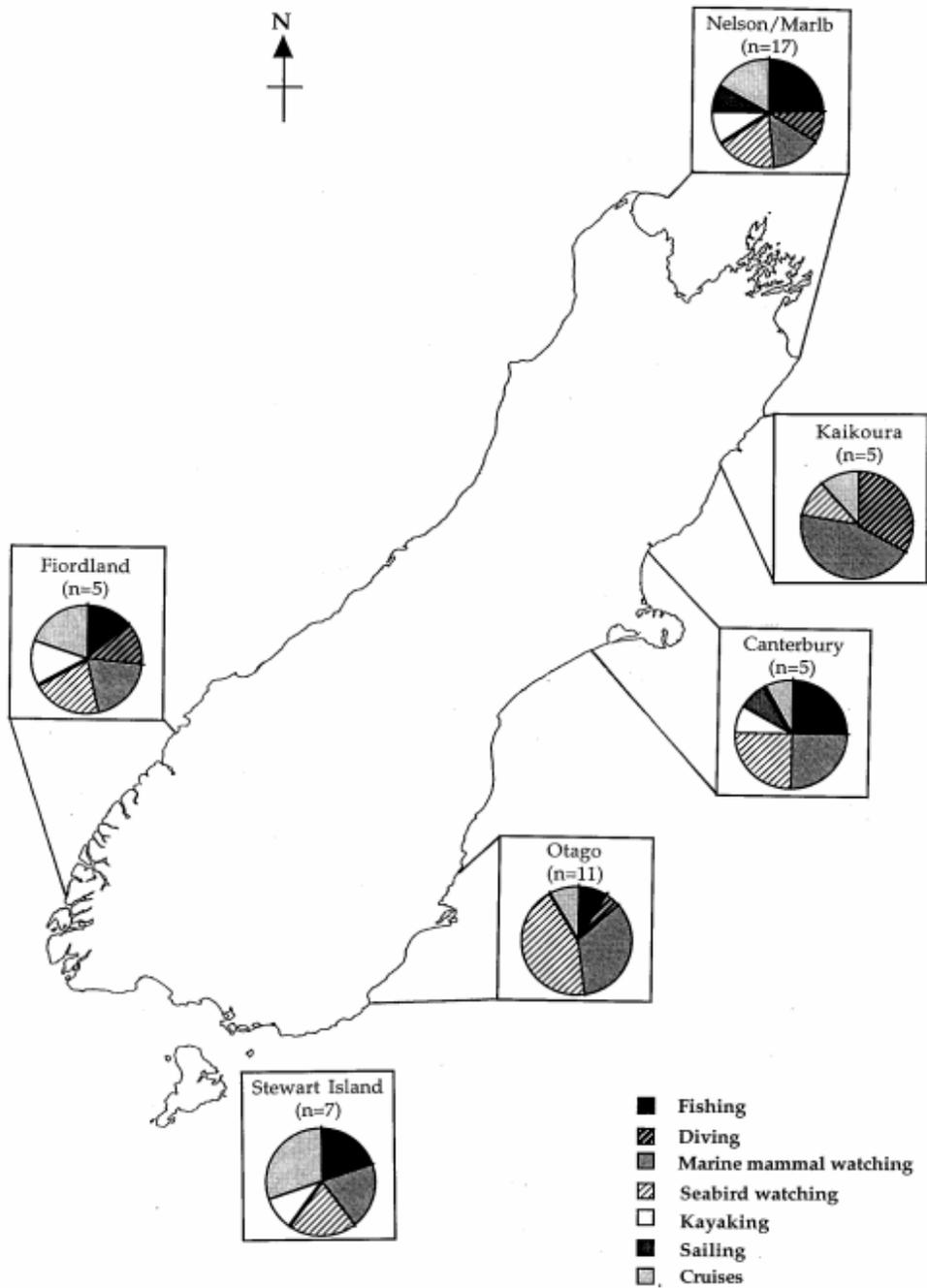


FIGURE 4.5.

Type of activities incorporated in marine-based operations in the North Island's key marine tourism locations (operators offering activities 'always' or 'often' included in the analysis). Bol=Bay of Islands

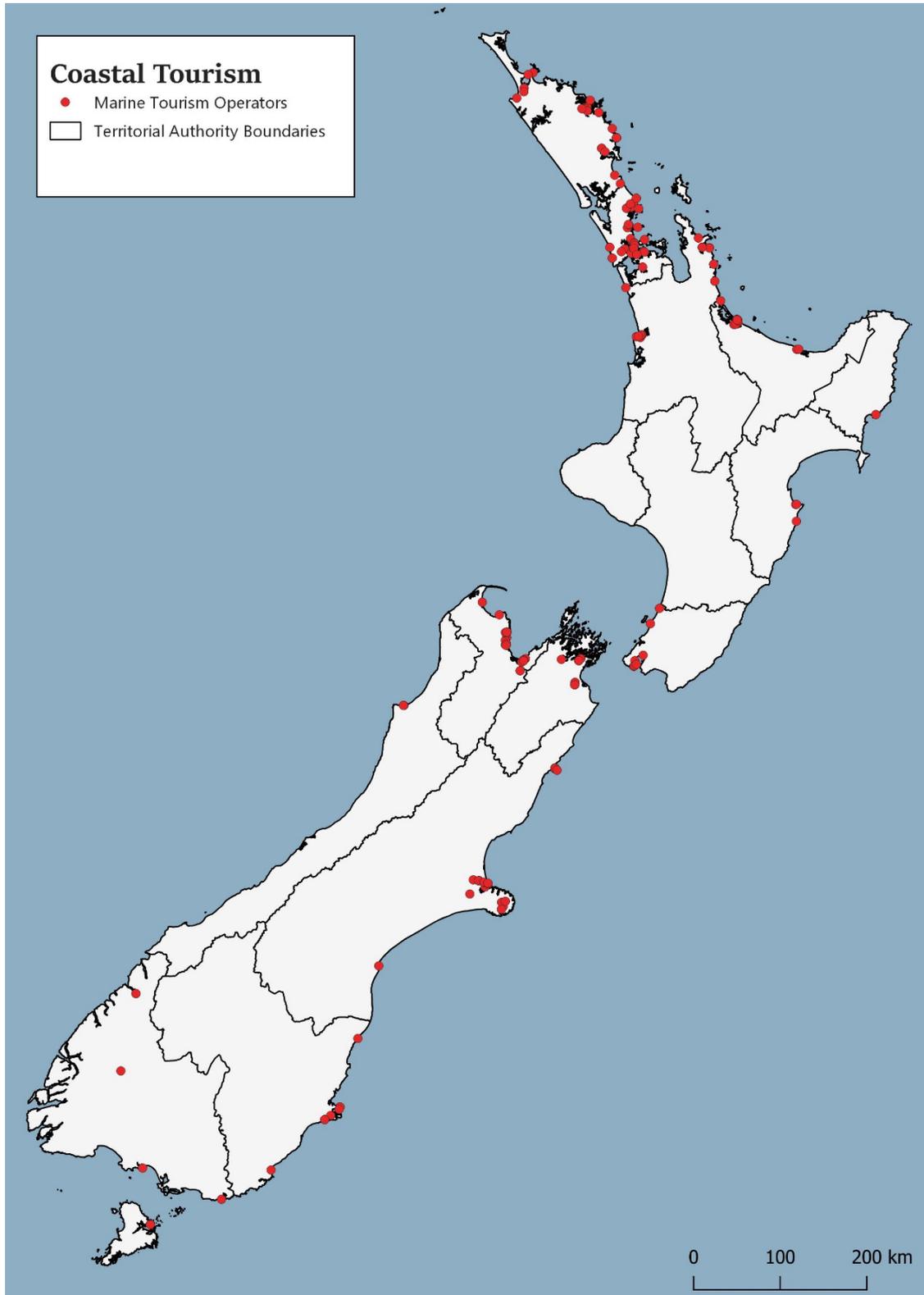
**Appendix 7: Type of activities incorporated in marine based operations in the North Islands key marine tourism locations. South Island.**

Source: McKegg (1996)



## Appendix 8: Marine tourism operators (n=250) locations New Zealand

Source: Market Economics (2019)



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