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Analysis

Contributions of tourism-based Marine Conservation Agreements to natural resource management in Fiji

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A B S T R A C T

The marine environment is vital for Fiji's tourism sector, yet industry and community partnerships to conserve it have largely gone unrecognised. A study from March to October 2017 documented the extent and scale to which 'Marine Conservation Agreements' (MCAs) between tourism operators and indigenous, resource owning communities are used in Fiji, and their contribution to biodiversity conservation and fisheries management. More than half of operators (69.1%) interviewed had been involved, were involved, or were becoming involved, in some form of MCA, focused on temporary or permanent no-take Marine Protected Areas (MPAs). MPAs established through MCAs covered an estimated 26,625 ha, of which 21,000 ha comprised deep water and offshore reefs within two large marine reserves, and 5625 ha comprised mostly nearshore shallow fringing reefs and slopes. Only 28% of tourism-based MCAs included explicit economic incentives to the resource owners such as some level of payment, provision of infrastructure, or employment opportunities directly related to marine conservation. The remaining 72% supplied broader benefits such as sustainable marine resources or general employment in the tourism sector. Although MCAs are in place in Fiji with implied and not formal or explicit conditionality, they contribute to natural resource management and should be counted in global biodiversity targets.

1. Introduction

Government regulations on the protection of marine areas, or restrictions on fishing gear, fish harvest or other types of human use activities are often necessary, but insufficient to effectively manage marine resources, particularly in developing countries if there is inadequate compensation for loss of livelihoods (Mohammed, 2012). Regulations can be difficult and expensive to implement and enforce, and the regulatory process is often slow and inflexible. Top-down government regulations can further be perceived as confrontational, as they often revolve around restricting and banning certain practices without full transparency or buy-in from relevant stakeholders, including resource users (Jones, 2012; Gaymer et al., 2014). In contrast, voluntary agreements, in the right local context, can be more effective for jointly achieving conservation and human well-being goals (Wiley et al., 2008; Begossi et al., 2011; Pascal et al., 2018).

Voluntary agreements, particularly those under payment for ecosystem services (PES) schemes, have become increasingly common in terrestrial land management. Globally, there are over 550 documented PES schemes valued at US $36–42 billion in annual transactions (Salzman et al., 2018). However, the use of voluntary agreements in marine conservation has been slower to develop, in part due transboundary nature of marine resources, and because in most countries the ocean is a common pool resource with open access (Lau, 2013; Bladon et al., 2016). There is growing interest in applying PES to incentivise sustainable fisheries finance and management through the private sector, while reducing the financial burden to government and fishers (Bladon et al., 2016).

Marine Conservation Agreements (MCAs) have emerged as a variation of PES, and under certain conditions, can provide a strong form of effective voluntary agreements (Udelhoven et al., 2010). Incentives need not be financial, and MCAs are not required to have an exchange of money between service users and service providers. PES are a subset of MCAs that specifically involve monetary transactions between buyers and sellers of a particular marine resource or practice. The use of MCAs are varied, contributing to maintaining ecosystem services by protecting sites from incompatible activities, or by ensuring marine resources are used sustainably. An MCA is defined by its core components: (i) a contractual agreement consisting of a voluntary transaction; (ii) involving the exchange of a well-defined ecosystem service to achieve a conservation goal; (iii) is between two or more parties, one of which holds rights over the natural resources in question; (iv) an

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arrangement where the service user compensates the service provider through agreed upon incentives; and (v) is maintained only if the provider continues to supply the ecosystem service (Tacconi, 2012; Muradian et al., 2010; Wunder, 2015). MCAs can be entered into by governments, local communities, indigenous groups, the private sector, or non-government NGOs (NGOs), and there are examples in the Coral Triangle (Udelhoven et al., 2010; Jaiteh et al., 2016) and Eastern Tropical Pacific (Udelhoven et al., 2011) of MCAs making positive ecological and socioeconomic impacts.

For MCAs to be effective and sustainable in the long term there need to be clearly defined property rights that enable parties to enter into an agreement (Wunder, 2005; Börner et al., 2017), and legal recognition of traditional fisheries access rights in Fiji (Sloan and Chand, 2016), provides a core enabling condition to implement MCAs. However, there is currently no information available on the extent and scale to which MCAs are being used nationally, and their effectiveness. Like many Pacific countries, Fiji's inshore fisheries stocks are in decline (Mangubhai et al., 2019). Overfishing on shallow fringing reefs has resulted in localised depletion of invertebrate and fish populations to below breeding densities (Lalavanua et al., 2017; Prince et al., 2019), creating a risk of local fisheries collapse (Bell et al., 2009) which threatens both local livelihoods and the tourism sector. Understanding the conditions which lead to the successful implementation of MCAs, and the potential to scale up these efforts could have significant implications for conserving marine resources.

Fiji's tourism industry and marketing efforts rely heavily on the perception of a pristine coastal environment. The image of Fiji projected by Tourism Fiji, the national tourism marketing body and by tourism operators is that of clear beaches, palm trees, and crystal water teeming with healthy coral and schooling tropical fish. The value of marine ecosystem services within Fiji's tourism industry is estimated at approximately US$573.6 million per year (MACBIO, 2015). According to national statistics, 75% of visitors to Fiji swim and 60% snorkel in the sea fronting their selected resorts, and 12% of visitors specifically visit to go SCUBA diving (Ministry of Industry, Trade and Tourism, 2006).

This paper examines the application of tourism-based MCAs in Fiji, and the conditions which have enabled their success. The study focuses only on partnerships involving local communities with land-sea tenure rights and marine-based tourism operators to examine the contribution of MCAs to biodiversity conservation and fisheries management. Case studies are provided to demonstrate the diversity of ways MCAs are being established and used for marine conservation in Fiji, which may be applicable to other geographies.

2. Methods

There were 395 licensed hotel properties listed by the Fiji Department of Tourism (2016) ranging from two-room homestays, small island resorts, city and conference hotels, to large coastal resorts. From this list 115 tourism-based coastal properties and dive operators were approached by telephone and email to determine their willingness to participate in the study. Purposive sampling was done where operators were selected only if they had properties on the coast, marketed principally to overseas clientele, and the marine environment was an important tourism resource and attraction. Of the 115 contacted, 81 (70%) responded positively, and key informant interviews were scheduled with general managers or in some cases the owners.

A socioeconomic questionnaire was developed to interview and gather information from tourism operators (Supplementary Materials). Interviews were held in person, on site when possible, or over the telephone. Questions covered MCA goals and objectives, types of agreements formed, partners or advisors involved, agreement type (e.g. verbal vs. written, traditional vs. legal) and duration, estimated size of MCA area (where relevant), compensation and benefits, monitoring and evaluation, and compliance and enforcement. Websites were consulted to gather publicly available information on the MCAs and to cross-validate the information provided.

Case studies presented in this paper were only included if the tourism operator provided verbal or email consent. Each interview took around 30 min to cover the core interview topics, but many operators were willing to volunteer further information which was gathered as additional notes. Interviews also included staff involved in environmental activities and water sports and, in some cases, members of environment committees. Several resource owners or custodians, some of whom had direct involvement in tourism MCAs either as partners or managers, were consulted where available, but not surveyed extensively as they were outside the scope of the study. Detailed maps were not available for most areas covered by the MCAs, including the Marine Protected Areas (MPAs) established jointly by tourism operators and local communities. Maps of MPAs were drawn from on-site handheld Global Position System (GPS) marks or landmark descriptions in consultation with operators.

3. Results

3.1. Types of MCAs

Of the 81 tourism operators surveyed, 56 (69.1%) had been involved, were involved, or were becoming involved in some form of MCA. Five MCAs had lapsed due to community conflicts or changes in tourism management, and three were in formation at the time of survey. All operators were using MCAs as a tool to establish some type of MPA (i.e. marine spatial closure) within the traditional fishing grounds of indigenous Fijian (*iTaukei*) communities. Forty-eight percent of the MCAs were simple “no-fishing” MPA agreements, while the other 52% had additional bans on reef walking, shell collecting, and/or the use of motorised water sports. Four (7.1%) of the operators had MCAs that were focused on charismatic megafauna (i.e. sharks, manta rays, spinner dolphins). Forty-five percent of operators implemented reef enhancement projects such as coral planting and giant clam restocking, and 36% organised the removal of predatory crown-of-thorns starfish (*Acanthaster planci*) when outbreaks occurred.

The 56 documented tourism-related MPAs covered an estimated area of 26,625 ha of coral reefs, of which almost 80% or 21,000 ha was made up of deep water and offshore reefs within the Namena Marine Reserve and Vatu-i-Ra Conservation Park; the remaining 5625 ha covered mainly nearshore shallow fringing reefs and slopes. Conservation was considered an important objective for tourism operators. The majority (65.0%) of tourism-related MCAs in Fiji have been created within the last 10 years, but some were started more than 10 years ago (26.8%), and a smaller number of those more than 20 years ago (5.4%). Two-thirds of the agreements did not have a defined duration and the agreements are intended to last as long as the tourism operation was in business and the community resource users were still willing to adhere to the MCA.

A variety of objectives for establishing MPAs were found among tourism operators (Table 1). The majority stated that their primary objective for establishing MPAs was ‘to sustain the health of the resource for tourism use’, with a much smaller percentage listing ‘to sustain the resource for biodiversity conservation’ as an objective. The objectives listed fell into three broad categories of objectives: (i) marketing; (ii) conservation; and (iii) community. Documenting the community motivations for MCA participation was outside the scope of this study and, as a result, the objectives for resource users who hold traditional land and fishing rights are not included in the results.

3.2. Resource rights

The ecosystem service provider in an MCA must have rights over the resource to enter into the agreement (Wunder, 2005; Börner et al., 2017). Marine resources in Fiji exist in a dual system of governance between traditional fishing rights communities (i.e. indigenous Fijians

Table 1
The diversity of objectives tourism operators had for establishing marine conservation agreements in Fiji.

Objective	Number	Percent
Marketing		
Sustainability of natural resource as a tourism attraction	39	70%
Marketing of pristine environment	31	55%
Non-income generating guest activities	30	54%
Income-generating guest activities	15	27%
Marketing as environmentally sustainable or ecotourism	15	27%
Direct marketing involving protected area	10	18%
Niche market trips for specific megafauna	5	9%
Niche market trips to community-managed areas	3	5%
Regional marketing opportunities	3	5%
Conservation		
Raising guest awareness of environmental conservation	30	54%
Raising staff awareness of environmental conservation	25	45%
Sustainability of natural resources for biodiversity conservation	23	41%
Raising community awareness of environmental conservation	14	25%
Support of research	8	14%
Community		
Improved relationship with local community	15	27%

known as *iTaukei*) and centralised government ownership, leading to a complex system when it comes to conservation, use, and management of marine resources (Sloan and Chand, 2016). While the physical seabed below the high tide mark belongs to the state, the traditional rights of land owning communities to fishing resources in inshore areas (i.e. from the high water mark to outer edge of coral reefs) are legally recognised. Under Fijian law, indigenous communities have access rights for subsistence but are required to follow formal government processes to receive licenses for commercial fishing. According to law, they are limited in their ability to regulate their traditional fishing ground as the government retains the right to make regulations on fishing methods, limits on catch, and the formation of prohibited areas. However, many communities practice traditional management systems (e.g. periodically harvested spatial or species closures called *tabus*, Jupiter et al., 2014) which can be included as 'no go' areas in fishing licenses. For MCAs in Fiji, the service providers are mostly traditional resource users and the beneficiaries are tourism operators and their clients. In addition to the resource providers and users, 76.8% tourism operators worked with at least one external partner to support the formation of their MCA. A total of 22 partners were identified, including non-government organisations (43%), private sector companies (25%), government ministries (29%), most commonly the Ministry of Fisheries, and academic institutions (3%) such as the University of the South Pacific.

3.3. Legal frameworks

MCAs do not, in general, require a specific legal framework beyond contract law as they tend to be limited in scope and area (Greiber, 2009). However, due to the shared nature of the ownership of marine resources in Fiji, if the current system of MCAs is to be scaled nationally, it will require legal frameworks that both promote agreements and remove disincentives which obstruct the operation of MCAs (Kemkes et al., 2010).

There are four primary legal frameworks relevant to the formation and management of MCAs in Fiji, which are briefly described here. The 2013 Constitution of the Republic of Fiji recognises the traditional right of access to marine resources, but only guarantees a right to compensation or payment of royalties for infringement of these rights for mining operations. The 1946 State Lands Act which stipulates that foreshore and seabed belong to the state, allows for leases to exclude public access from an area (e.g. resorts operating on the foreshore) and licenses to undertake an activity (e.g. shark feeding) which cannot be used to exclude public access. The Lands Department has, in recent years, granted foreshore lands licenses and one lease to establish MPAs; but the legality of these leases is unclear (FELA and EDO, 2017).

The 2010 Regulation of Surfing Areas Decree, outlaws the practice of resource users charging tourism operators a fee for the use of their traditional fishing grounds for water sports, including snorkeling and SCUBA diving. This has presented a challenge in the continuation and expansion of MCAs as it prevents indigenous communities from determining access and use of traditional fishing grounds by the tourism industry. The 1942 Fisheries Act regulates nearshore fisheries in Fiji and recognises the rights of indigenous resource users to fish in traditional fishing grounds for subsistence purposes, but does not prescribe the payment of any compensation to traditional resource holders for approving the rights to fish of an entity outside the community, or as compensation for the waiver of fishing rights if an MPA is established.

3.4. Agreement mechanisms

The relationship between traditional resource rights and existing legal frameworks shapes the mechanisms available for the formation of MCAs in Fiji, allowing individual communities with access rights over traditional fishing grounds to enter into conservation agreements without extensive formal processes. Four types of MCAs were used to set up MPAs in Fiji: (1) informal or traditional verbal agreements; (2) written agreements; (3) foreshore license or lease agreement; and (4) statutory reserves gazetted under law (Table 2).

Informal or traditional verbal agreements were the most common agreement mechanism. As subsistence fishing is primarily done by traditional resource users, those with interests in tourism development were sometimes asked not to fish in front of a resort for an unstated period to enhance sustainability of employment. Traditional agreements known as *tabus* were frequently used to create no-take areas which are fully recognised and observed by the local communities, but without any documentation or legal status. In contrast, written agreements were used by some operators (28%) to formalise the traditional *tabu*, which typically consist of letters from the traditional leader to the tourism operator (Table 2). In some cases, documented *tabu* areas had been submitted to the Ministry of Fisheries for exclusion from commercial fishing licenses.

Legal recognition for protected areas has been sought under two main mechanisms; foreshore lease or license, and statutory reserves gazetted under law. Foreshore leases or licenses are designed primarily for development or commercial uses of shallow foreshore areas. As these areas are considered to be "land or soil under waters of Fiji" under the 1978 Crown Lands Act, they can be leased or licensed by Department of Lands. Annual rent is paid to the government, but payments (if any) to the community, as compensation for loss of fishing resources, must be negotiated separately. A lease gives the right to exclude other users, while a license gives the right to use but not to exclude others. This mechanism is not ideal for formation of MPAs, as there are legal conflicts with other laws as described in Section 3.3.

Statutory reserves under the 1942 Fisheries Act, allows the Ministry of Fisheries to create prohibited or restricted areas in the interests of conservation, protection and maintenance of a stock of fish. Each MPA is formed through a separate regulation, with rules that clearly

Table 2
Different mechanisms used to establish marine conservation agreements in Fiji.

Agreement mechanism	Number	Percent
Informal or verbal *tabu*	35	63%
Documented *tabu*	16	28%
Foreshore lease or license	3	5%
Statutory reserve	2	4%

demarcate the protected area, states the species to be protected, and sets the penalties for breach of the regulation. The process is slow, but has been used to create several MPAs in Fiji which have full legal status. It does involve abrogation of the fishing rights of the local communities, which can only be reversed through Cabinet (FELA and EDO, 2017),

Of the tourism operators surveyed, 51% were content with their current MCA agreements while the remaining 49% would welcome greater formalisation of their agreements to address poaching in the established MPAs. Only 14.2% tourism operators voiced interest in legal solutions such as statutory reserves or foreshore leases.

3.5. Benefits and incentives

The provision of benefits or incentives is central to the success of MCAs as they offer a means of compensation to the ecosystem service providers (Corbera and Pascual, 2012; Pascual et al., 2014). Incentives under traditional PES schemes are often associated with the direct transfer of finances or monetary incentives (Pattanayak et al., 2010), and have been applied in Fiji to conserve high biodiversity forests (Mangubhai and Lumelume, 2019). In the case of MCAs, four types of non-monetary incentives were frequently used in Fiji: (1) in-kind payments, including goods, knowledge transfer, capacity-building in exchange for conservation (72%); (2) direct financial payments, typically compensation for opportunity cost of otherwise developing or using the resource (18%); (3) community income-generating opportunities including employment in the tourism sector and community operated business (5%); and/or (4) financial support for community development and infrastructure, such as schools, hospitals, roads, and gear for sustainable harvesting practices (5%). At the 40 MCA sites which did not offer direct or indirect monetary incentives, tourism operators stated that communities received "in-kind ecosystem benefits" such as improved fishing within their surrounding fishing grounds, sustainability of breeding stocks of marine life, and coastal protection. The majority of sites supplied more tangible benefits such as land lease payments and general tourism employment. Of the MCAs that provided explicit economic incentives to the resource-owning community, only 10 provided direct financial payments while others provided infrastructure improvements or income-generating opportunities directly related to marine conservation. However, these 10 MCAs with direct financial payments included the two largest MPAs (established by communities as permanent *tabus*), the Namena Marine Reserve and Vatu-i-Ra Conservation Park.

Assessing the advantages and disadvantages of direct financial payments for MCAs in Fiji is complex. Many tourism operators currently rely entirely on traditional agreements and goodwill. When asked whether they would be prepared to enter into direct financial payments for conservation agreements, many said no, as they saw it as a potential source of conflict which could undermine their existing agreement. Others said they would consider it in return for more formal enforceable MCAs. Many said that they would have considered direct payments more favorably in the past, but the imposition of the new government Environment and Climate Adaptation Levy (ECAL) which collected 10% of gross turnover from hotels and other tourism operators paid into an Environment and Climate Adaptation Fund (ECAF) with no direct benefits to the tourism sector, served as a disincentive. According to the Fiji Government, ECAL will "help fund critical work across Fiji to protect our natural environment, reduce our carbon footprint, and adapt our economy, our communities and our infrastructure to the worsening impacts of climate change", and US$55.5 million has been collected as of April 2019 (Government of Fiji, 2019). Although funds have been allocated to 'Sustainable Resource Management' (US$1.65 million) and 'Environmental Conservation' (US$480,000), these have largely been used to fund development projects, including coastal fisheries development and the establishment of ice plants in Fiji. The vast majority of ECAF (65%) is used for infrastructure development for the country.

3.6. Conditionality, monitoring, and enforcement

Conditionality is a defining feature of MCAs as well as for terrestrial and marine PES schemes more broadly. Conditionality allows for provision of incentives to be contingent upon the provision of the agreed upon ecosystem service, creating a transaction where the provider is required to fulfill its obligation to the ecosystem service user (Engel et al., 2008; Wunder, 2015). The primary advantage of direct financial compensation agreements is that there is a clear route to conditionality; if the protection is not maintained then the payments can be stopped. However, no specific examples could be found in Fiji of payments or benefits ceasing as a result of breach of terms in the MCA. This is despite verbal reports of inside and outside fishers poaching MPAs (Table 3). However, two MPAs failed due to financial conflicts within the communities caused by the perception that financial payments were being unfairly distributed.

Conditionality requires a robust monitoring and evaluation framework to track the intervention or activities, and ultimately the success of the MCAs towards the specified agreed objectives (Teneva and Mangubhai, 2016). Most MCAs in Fiji had minimal monitoring in place other than tourism satisfaction (59%). Where monitoring occurred, it was largely confined to biological monitoring (32% regular, 27% occasional), with few MCAs monitoring socioeconomic benefits to the community (7%). Where there has been long-term monitoring there has been documented improvement of coral cover and fish biomass as well as shark populations (Goetze and Fullwood, 2012) within MCA areas compared to unprotected sites (Sykes and Reddy, 2009; Jupiter and Egli, 2011).

Across Fiji, enforcement of MCAs remains a challenge because those established by a *tabu* are particularly vulnerable as they do not have formal recognition in law. Poaching was identified as a threat to existing MPAs, ranging from occasional incursion by subsistence fishers to commercial harvesting from outside the MCA-community. Most tourism operators (59%) felt poaching was low and largely confined to fishing from within the community (Table 3). Seven operators either did not enforce protection against poaching, or there was no available information. Of the operators that did enforce their MPA, the majority of enforcement was done by resort staff and was frequently dealt with either in-house or among members of the community associated with the MCA. Some operators had provided financial support to train "honourary fish wardens" who were from local communities and/or their staff (who were from the MCA-community). These fish wardens are appointed by the Ministry of Fisheries to assist in the prevention and detection of offenses under the Fisheries Act. Although the current fish warden system is largely ineffective (Gillett, 2018), there are efforts underway by the Ministry to develop a national strategy for fish

Table 3
Perceptions of tourism operators on poaching and enforcement of marine conservation agreements in Fiji.

Perceptions of Poaching	Number	Percent
Level of poaching		
Low	20	59%
Medium	6	18%
High	8	24%
Origin of poachers		
From local community	20	71%
From outside the local community	8	29%
Personnel involved in enforcement		
Non-Fish Wardens on staff	32	60%
Fish Wardens on staff	9	17%
Fish Wardens in community	9	17%
Other members of the community	3	6%
Reporting of poaching activities		
Report to community	27	55%
Deal with in-house	16	33%
Report to police or fisheries officer	6	12%

wardens.

4. MCA case studies

Five case studies are provided to highlight the diversity of MCAs in place in Fiji.

4.1. Large no-take MPAs

The Namena Marine Reserve (NMR, 8800 ha) and Vatu-i-Ra Conservation Park (11,000 ha) cover full reef ecosystems, including small islands, passages, shallow and deep reefs and ocean, and encompass almost 80% of the area protected by tourism-related MCAs. The NMR was established through a verbal *tabu* by the traditional leaders of Kubulau District with the support of local SCUBA dive operators to address the threat of overfishing, particularly from the tuna pole and line vessels prevalent in the early 1990s. The Wildlife Conservation Society (WCS) and the Coral Reef Alliance provided some of the initial and ongoing transaction costs (e.g. monitoring, printing of dive tags) for the MCA. The Kubulau Resource Management Committee oversees the implementation of the Kubulau District Ecosystem-Based Management Plan which includes the NMR (WCS, 2012).

Divers visiting NMR are given the option of making a voluntary contribution of FJ$30 (US$13.80) per diver in return for an annual dive tag. Tourism operators collect and place contributions into a trust fund which are used to cover management costs for the reserve, and to provide tertiary education scholarships to selected children from the district. A board of trustees comprising representatives from the community and tourism industry oversees the trust fund, which has provided over 160 scholarships to children, three bus shelters, maintained boat moorings, and supported fish warden trainings. Upwards of 1500 dive tags were sold annually in recent years bringing in at least US $20,700 annually.

WCS currently bears the cost of biological and socioeconomic monitoring to measure the impact and success of the reserve (Clarke and Jupiter, 2010; Jupiter and Egli, 2011). The reserve is 14 km offshore and therefore has some natural protection from subsistence fishing, but is vulnerable to larger commercial fishing boats. From the establishment of the Reserve until 2013, the resort staff and owners on Namenalala Island were the principal enforcement agency of protection of the area. In 2013, the resort changed hands, and then closed following extensive damage from Cyclone Winston in February 2016 (Mangubhai et al., 2019). Although a local day-boat dive operator has taken over enforcement and monitoring of the park, informal reports suggest that without a presence on the island, poaching is on the increase.

4.2. Locally-owned private resorts

Lawaki Beach House on Beqa Island and Botaira Resort on Naviti Island in the Yasawa Group are examples of MCAs managed by small privately-owned resorts. Although members of the local communities are not directly involved in decision-making at the resort, they supply most of the employees. The shallow fringing reef fronting the Lawaki Beach House is protected under a traditional *tabu* agreement made verbally in 2004, and extended in 2010 with community members. The area (~45 ha) is currently used for snorkeling and each visitor is asked to contribute FJ$10 (US$4.60) to a local community fund. The annual income to the village is estimated between US$2300–4600. The resort has also trained 10 communities in reef monitoring and to be snorkel guides and fish wardens. The Botaira Resort began operating in 2008 and established an MPA (~53 ha) that same year. While the resort does not provide financial payments to the community and does not charge guests for snorkeling in the MPA, it does employ members of the local village. Staff have been trained in reef monitoring and to be snorkel guides. In both of these cases, the *tabu* areas were formed after NGOs and private sector organisations worked with the local communities to create awareness of the prospective benefits. A similar strategy has been attempted in neighboring areas without active resort involvement but has failed due to the difficulties in enforcement. The *tabu* areas in front of the resorts have survived because the community sees direct benefits from their existence and because the resort owners and staff actively police and enforce the area.

4.3. Protection of charismatic megafauna

Three MCAs have been set up in Fiji to protect manta rays (*Mobula alfredi*), spinner dolphins (*Stenella longirostris*) and shark species (see Section 4.5). The passage between Drawaqa and Naviti islands is an aggregation site for manta rays between the months of May to October. Local resorts began to establish income-generating snorkel trips for tourists to view the manta rays in the mid-2000s and in 2013, the channel and the surrounding area was recognised as *tabu* by the traditional resource users and the Ministry of Fisheries. The number of tourists visiting the manta channel exceeded 5000 in 2015, and based on the average price of FJ$40 (US $18.40) per person per trip, manta tourism at this site generated US$101,237 in total revenue over 6 months, split between several snorkel trip operators, including some belonging to the local community with customary user rights. A percentage of the proceeds gained from manta snorkel trips is paid to the land-owning communities as part of land lease payments. Multiple resorts use this area as an attraction, and there is a need to agree on best practice guidelines to prevent harassment and possible driving away of the mantas. The manta ray has traditional importance to the local communities as a traditional totem species, and there are some conflicts regarding potential payments to resource users over the use of the channel that need to be resolved. Monitoring is conducted by the Manta Trust Project which carries out research on the ray population and migration patterns, as well as on-staff marine biologists at the Barefoot Manta Island Resort which carries out regular reef enhancement programs such as removal of crown-of-thorns starfish, restocking of giant clams, and coral planting, with guests. Tourism operators report any local fishers to the community leaders, keeping such poaching to low levels, although spear fishers do occasionally venture into the channel, targeting fish. There are frequent night-time visits from small-scale commercial fishing boats from the mainland.

4.4. Foreshore license

Foreshore leases are granted for a limited term by the Lands Department with all payments going to the government, not the local resource owners. In 2015, a five-year license was granted to the Naivuatolu Cooperative Limited to establish the Waivunia Marine Park over a 4 km stretch of foreshore. The marine park is unique in that the traditional fishing resource users have licensed their own fishing ground with the government in order to legally reinforce their previously established *tabu* to manage it for the purpose of creating a tourism resource, for an annual fee of FJ$100 (US$46). Under the conditions of the license, the resource using community has not stopped all fishing in the MPA but has, instead, designated “green weeks” where no fishing is done to reduce pressures on the marine resources. The aim of the Waivunia Marine Park is to establish sustainable tourism income for the community and the cooperative has partnered a local dive operator to patrol the area.

4.5. Statutory marine reserves

In 2014, Serua Shark Reef Marine Reserve (SSRMR, 1730 ha) became the first statutory national sanctuary for sharks under the Fisheries Act (Brunnschweiler, 2010). Any fishing or collection activity that breaches the regulations of the reserve are liable to fines up to US $4600 or imprisonment up to six months. The reserve is primarily used

as a shark-feeding SCUBA diving attraction, managed by a committee consisting of the fisheries resource users, a dive operator, an academic, and a civil society representative. The legal agreement only covers the rules and regulations of the park use and does not include any stipulations for financial compensation or benefit agreements. In this case, FJ$20–25 (US$9.20–11.50) charged by two dive operators is managed by a committee with representation from traditional resource users through voluntary contractual agreements that pre-date the statutory reserve.

5. Discussion

PES has been used widely as a market-based tool to provide positive conditional incentives for forest conservation (Wunder, 2005; Engel et al., 2008; Salzman et al., 2018), but relatively few examples exist in coastal and marine environments (but see Udelhoven et al., 2010, 2011; Lau, 2013; Bladon et al., 2016; Jaiteh et al., 2016). Similar to terrestrial PES schemes, MCAs require a number of enabling conditions to be effective including clear agreement mechanisms, conservation goals, right-holders, specific ecosystem service providers and users, a voluntary transaction, incentives and conditionality (Wunder, 2015; Bladon et al., 2016). MCAs may be structured in a variety of ways in terms of the type of agreement, the parties to the agreement, the types of conservation measures agreed to, and resulting economic incentives.

Customary tenure systems in Melanesia provide the enabling conditions for establishing conservation partnerships at the grassroots level (Jupiter, 2017). This is particularly evident in Fiji where land and marine tenure boundaries are legally demarcated, providing clarity on who conservation agreements should be formed with (Sloan and Chand, 2016; Mangubhai and Lumelume, 2019). Fiji is considered a leader in community-based marine conservation (Govan et al., 2006), but the national contribution of MCAs has not been documented and therefore has largely gone unrecognised to date. However, environmental awareness of the threats to marine ecosystems combined with forward-thinking traditional leadership has cultivated unique partnerships between communities and tourism operators to establish MPAs to protect and conserve the marine resources around their properties through MCAs. A total of 56 tourism-related MPAs covering 26,625 ha were documented by this study. It is estimated that there are at least another 10–20 MCAs that were not covered by this study, and more under consideration.

Unlike other geographies that used a range of conservation strategies (Udelhoven et al., 2010, 2011), MCAs in Fiji were used only to establish no-take MPAs, some of which sit within larger locally managed marine areas (e.g. Clarke and Jupiter, 2010; Jupiter and Egli, 2011; Jupiter et al., 2014). The majority of MCAs do not have formal contractual agreements or management plans, or documented financial agreements between providers and beneficiaries, instead relying on verbal understandings and trust relationships between resource owners and tourism operators. Verbal commitments provide indigenous Fijian communities the opportunities to enter into agreements without abrogation of their customary tenure rights, which occurs if areas are formally protected through government regulations. This is particularly important in countries like Fiji where written documents around their natural resources are often associated with providing formal consent and access rights to the private sector for extraction of forest or mineral resources, or land development, including agriculture.

Distributional justice is core to the management and use of common-pool natural resources and perceptions of equity or fairness can vary between different social and cultural contexts (Gurney et al., 2014; Ban et al., 2019); however, there are limited studies on what local stakeholders consider fair with respect to the distribution of communal benefits (but see Hayes and Murtinho, 2018). Direct payments are not always best suited to Fiji's social and cultural context. Where direct payments are used, conflict can arise from lack of transparency and feelings of exclusion by involved parties, leading many tourism operators and communities to opt for alternative forms of incentives or compensation. MCAs which do not involve direct financial benefits to community resource users may provide the mutual benefits of improved ecosystems (Jupiter et al., 2014) and stability of employment, and may be more financially sustainable in the long-term. However, incentives, regardless of whether they are financial or non-financial, can be a source of conflict if not distributed equitably across participating parties or if there are differing perceptions of equity (Loft et al., 2017), and can "erode cultural and ethical motivations for conserving nature" (Lau, 2013). A recent study in Fiji in the Vatu-i-Ra Conservation Park established under an MCA, found the distribution of benefits using a 'rights-based distributional justice principle' was considered fair or very fair by more than 80% of respondents (WCS unpublished data); however, there was no one solution everyone found equitable and fair.

It is also important to note that this current paper has focused only on the perspectives of tourism operators in relation to the success of the MCAs in place in Fiji. Measuring the benefits and costs that an MCA creates for indigenous communities is not straightforward, and the information needed to do so is not available and is important, but was beyond the scope of this study. The concept of value in an indigenous community in Fiji is complex and places emphasis on relationships, reciprocity, stewardship of environmental and cultural resources and knowledge, communal working, and church, in addition to economic wealth and transactions. In addition to 'economic' measures of success, such as jobs and income created for the community, other important factors in perceptions of success may include the degree to which local capability is developed, the respect of local knowledge, the degree of involvement in the definition of goals and decision-making processes (Hughes and Scheyvens, 2018). The relatively high rates of poaching within certain areas covered by MCAs could indicate that some community members are not satisfied with the current agreements. More research is needed to better understand who is responsible for poaching (i.e. community members that are part of the MCA or other outside communities), and community perceptions of equity in the distribution of benefits associated with the agreements.

Conditionality has been argued as core to the success of any PES scheme, both terrestrial and marine (Sommerville et al., 2009). Payments, whether financial or non-financial, are conditional on the continued provision of the ecosystem service that has been agreed upon, which should be verified by baseline data and ongoing monitoring (García-Amado et al., 2011; Teneva and Mangubhai, 2016; Börner et al., 2017). Even in Fiji where land-sea tenure rights are legally defined, the mobility of many marine species makes it difficult to prevent others from accessing the resources, and may raise the transaction costs of MCAs compared to other management approaches (Farley and Costanza, 2010; Lau, 2013; Bladon et al., 2016). Enforcement of MPAs established through a *tabu* largely relies on the authority of traditional leaders and social pressures, and good relationships between tourism operators and communities, with a stable and long-term arrangement. This system of enforcement has the advantage of maintaining the traditional ownership rights of the village communities. Some authors have argued that when there is less conditionality and the perception of benefits weaken through inadequate enforcement, the effectiveness and long-term sustainability of the MCA approach may be reduced (Kemkes et al., 2010). However, despite the lack of conditionality in Fiji, the strong relationships between many communities and tourism operators is such that unless there is direct and persistent non-compliance by one or the other, commitments to the MCAs continue. It is only when conflicts arise, or key personnel depart, protection tends to collapse. The findings from this study suggest that the effectiveness or success of MCAs should not be narrowly defined by conditionality, but the longer term sustainability of behavioural change and motives (Martin et al., 2014), and social networks and trust relationships (Bodin and Crona, 2009; Fellows, 2014) between communities and the tourism sector.

Markets often fail to capture the non-monetary values of coastal and

marine ecosystem services and so are under-valued and under-utilised when making resource management decisions, especially when non-unsustainable options can (in the short-term) produce goods to sell in the market place (Lau, 2013). The utilisation of MCAs in Fiji to conserve marine resources for continued use by the tourism industry represents a larger opportunity to translate the ecosystem services provided by the marine environment into an effective tool for biodiversity protection and sustainable fisheries management, and build mutually beneficial private sector-community partnerships. There have been numerous studies quantifying the monetary value of ecosystems services within the tourism industry (Castaño-Isaza et al., 2015; Lange, 2015; Hynes et al., 2018; Pascal et al., 2018), but limited research has been conducted as to how this value can be converted into effective conservation through MCAs in practice. The case studies in this study provide a typology of arrangements that can be translated into conservation practices which benefit the environment, tourism operators, and local communities.

There is not a great deal of recognition or publicity related to the marine conservation efforts of the tourism industry. It often seems that the industry is considered as a consumer, not a conserver of natural resources. This study found 69% of all operators who responded to the survey were involved in marine protection to some level, and yet only 4% of them used that directly in their marketing. Given sustainable tourism is expected to make increasing contributions to the global economy (Hasan, 2000), a coordinated strategy to better market the use of MCAs in Fiji could have significant impacts on national tourism revenue. For example, terrestrial protected areas managed for biodiversity have been found to attract nearly 1.35 times as many visitors as those which allowed mixed use (Chung et al., 2018). The marketing of Fiji's tourism sector revolves around the sustainability and quality of its marine environment and garnering more international and national recognition of the contribution made to national conservation goals can only be good for the community, the environment, and the tourism industry. Hughes and Scheyvens (2018) have identified various factors relating to the success of corporate social responsibility initiatives in Fiji from community perspectives and suggested a framework for analysis that takes this factors into account. While the context is different, they are likely to apply to community perceptions of success of MCAs. For example, the way in which MCAs are developed, the degree of local involvement in setting conservation priorities and ongoing governance of the MCA, the respect shown for local knowledge, and the development of local capabilities as part of the ongoing monitoring initiatives, are all likely to contribute to the success or otherwise of MCAs. This warrants further investigation.

Lastly, it is important to note that MCAs in Fiji contribute to a number of its global commitments including Aichi Biodiversity Targets 3 (creation of positive incentives), 6 (improved management of fish and invertebrate stocks), 11 (conserve 10% of coastal and marine areas), 14 (safeguarding ecosystem services) and 20 (mobilization of financial resources) under the Convention on Biological Diversity. MCAs in Fiji contribute to the Convention on Migratory speces by protecting areas important to vulnerable megafauna. However, many of these MPAs have not been counted towards the national targets and other effective conservation measures. Currently, MCAs contribute 0.74% towards Fiji's MPA targets. Increased recognition – nationally and internationally – of the role of MCAs in promoting marine conservation will both strengthen the existing network and promote the development of additional MCAs, both in Fiji and abroad.

6. Conclusion

Globally, MCA schemes are considered challenging as they have to balance the interests of a range of stakeholders while also including a level of “additionality” or improvement in conservation goals over that which would have been achieved in their absence. This is also compounded by the fluid, transboundary nature of marine ecosystems, with the resources within considered common pool. MCAs may offer an opportunity to reach conservation targets while also promoting economic development and positive relationships between communities and private industry. However, monitoring and enforcement need to significantly improve to ensure MCAs are delivering ecological and socioeconomic outcomes, that are socially and culturally appropriate to the local context. Not all agreements will satisfy all the MCA enabling conditions, but all agreements present an opportunity for utilisation of the MCA framework and typology to strengthen existing partnerships and promote new conservation strategies. Government regulations alone will likely not be enough to meet requisite conservation goals and prevent the decline of Fiji's biodiversity and fisheries. Voluntary agreements, in the form of MCAs, present a useful tool in filling some of this gap. The tourism industry allows for ecosystems services to be translated into market incentives while the recognition of the rights of traditional resource holders offers a clear service provider. The approaches demonstrated in the cases studied provide valuable insights as MCAs continue to expand globally.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ecolecon.2020.106607.

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