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**Tackling coastal “overfishing” in Fiji: advocating for indigenous worldview, knowledge,
and values to be the backbone of fisheries management strategies**
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Abstract

Since the 1990s, natural resource management programmes are expected to integrate the holistic environmental knowledge of the indigenous people concerned, and this is supposed to significantly contribute to the empowerment of the latter. Yet, social science studies have established that, in practice, this is not automatically the case. Based on anthropological research in Fiji (South Pacific), this paper aims to contribute, through a specific focus on fisheries management, to the challenging of the power asymmetries still underlying most endeavours to combine indigenous knowledge systems and western ecological science. In particular, it highlights that the concept of ‘overfishing’ – a decisive driver of today’s coastal and reef fisheries management efforts in Fiji and beyond – tends to veil the ‘connectedness in all things’ that is at the core of the indigenous Fijian (*iTaukei*) epistemology, articulated around the vernacular concept of *vanua*. In the frame of this concept, human and fish behaviours are intrinsically interrelated, not only from ecological and economic perspectives, but also through fundamental sociocultural, spiritual and political relationships. The authors therefore advocate for a framing of coastal and reef fisheries management efforts that systematically (1) builds upon the *iTaukei* relational ontology and knowledge system, and (2) involves the local customary and religious leaders in accordance with their own worldview and values.

Keywords

South Pacific; Coastal and reef fisheries; Fisheries management; Overfishing; Local Ecological Knowledge (LEK); Leadership

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1. Introduction

Since the 1990s, the holistic knowledge of their environment developed by indigenous peoples throughout the world has been widely recognized. Various categories have emerged to refer to this knowledge: traditional ecological knowledge (TEK), local ecological knowledge (LEK), indigenous knowledge, local knowledge, local and indigenous knowledge systems, etc. (Roué 2012). Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, clearly recommended the incorporation of the “values and traditional and other knowledge and practices” of indigenous people and their communities in natural resource management and conservation policies and programmes.³ The combination of this holistic knowledge with western ecological science has also been gradually promoted, particularly in the framework of co-management endeavours (Nadasdy 2005) and disaster risk reduction strategies (Mercer et al. 2007), in order to increase the overall understanding and improve the management of the natural world, while allowing indigenous groups to “rebuild social and ecological resilience” (Ens & McDonald 2012:1).

These recognition and promotion processes are assumed to contribute to the empowerment of the indigenous groups concerned. Yet, social science studies have established that, in practice, this is not automatically the case (e.g., Fache 2017; Nadasdy 2003). Schematically, when elements of indigenous knowledge systems match up with western ecological science, they might indeed be greatly highlighted, but often in a simplified and reinvented form. However, when they do not, they are in general disqualified, and western ecological perspectives, concepts and practices are imposed to fill in what is deemed to be a knowledge gap, related to cultural loss or unprecedented environmental challenges. That is, in the real-world implementation of combinations between indigenous knowledge systems and western ecological science, the latter often remains “a language of domination” (Muller 2012). For socially acceptable and locally legitimate natural resource management and conservation to take place, recognising indigenous people’s valuable role in the global sustainable development agenda, indigenous knowledge systems should be taken into account and valued in all their diversity and complexity, whatever their (dis)alignment and epistemological (in)commensurability with western ecological science (Foale 2006). In addition, the “question of what ‘better land [and sea] management’ means for the different partners involved” should systematically be addressed (Barbour & Schlesinger 2012:39), so that the indigenous groups concerned are truly empowered to “implement on the ground management that makes sense according to their own world view” (ibid.:38).

In Fiji (cf. Fig.1), where legal pluralism is a core feature of coastal and reef fisheries governance (Rohe et al. 2019; Sloan & Chand 2016), the Fiji Locally Managed Marine Area (FLMMA) network has been acknowledged as “the main marine conservation network” (Hastings et al. 2015:156). This network is a non-profit and charitable association gathering together conservation NGOs, government agencies, academic institutions and local communities around the objective of promoting the sustainable use of marine resources in Fiji.⁴ To so do, the partners involved aim at “marrying traditional conservation practices with the latest science in resource management” (Wheeling 2017; see also Aalbersberg, Tawake & Parras 2005). These knowledge combination endeavours mainly target at addressing challenges to local livelihoods and food security. Conservation purposes are sometimes expressed by the local communities

³ See Agenda 21, Chapter 26, <http://www.un-documents.net/a21-26.htm> (Accessed on 24/01/2019).

⁴ See <http://lmmnetwork.org/who-we-are/country-networks/fiji/> (Accessed on 25/01/2019).

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involved, but might not constitute prime or sufficient motivation for a community to set up a locally managed marine area (LMMA), and are more often associated with more top-down approaches such as externally driven marine protected areas (Govan 2009:48-49). That said, LMMAs reflect the “duty of care” that – in Fiji as well as in other South Pacific contexts – people have to each other and the future generations as well as for the land and the sea (ibid.:22 & 50; see also Nolet 2018:23).

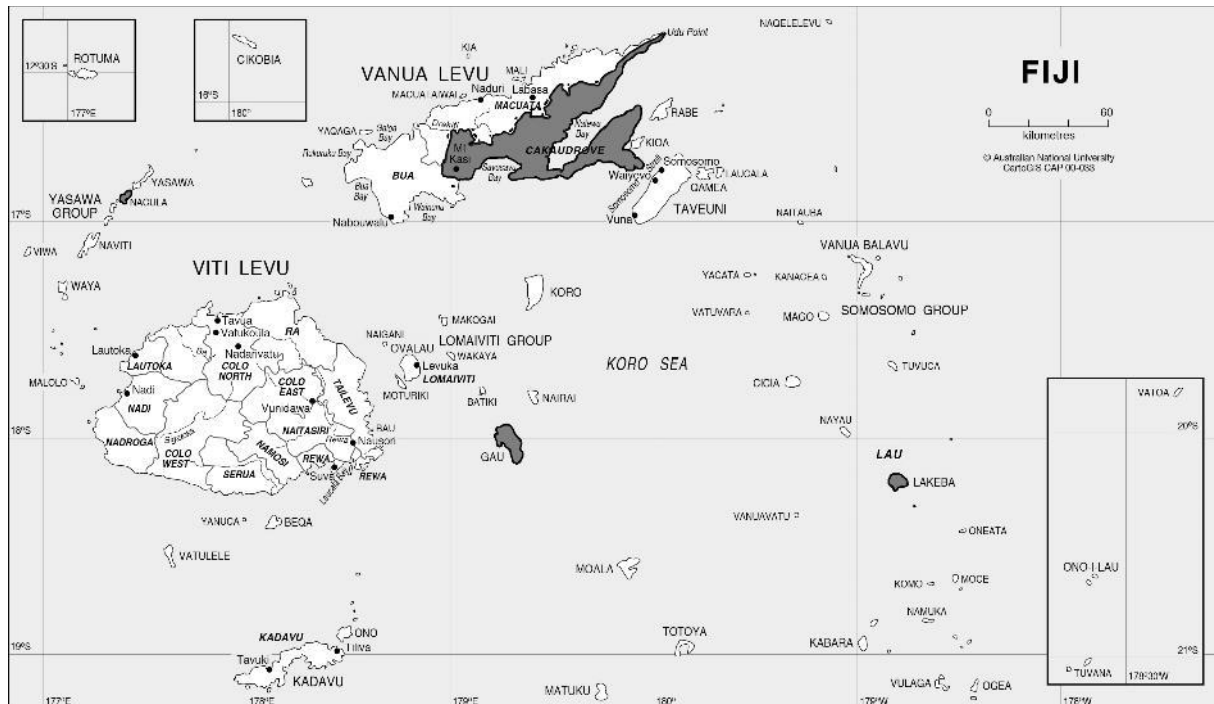


Fig.1: Map of the Republic of Fiji, with the names of its 14 Provinces, and highlighting the study areas mentioned in this paper (Source: CartoGIS Services, College of Asia and the Pacific, The Australian National University, <http://asiapacific.anu.edu.au/mapsonline/base-maps/fiji-islands>, modified by the authors)

Coastal and reef fisheries have significant economic and other values for the indigenous Fijian (*iTaukei*) resource-owning and resource-using groups; values shaped by their reliance on these fisheries for food, income and cultural reproduction (Foale, Dyer & Kinch 2016). The economic value of these fisheries appears as still intensifying in the context of the ever-increasing commodification of marine resources, sold directly in markets or to middlemen who bring markets to rural villages (Dacks et al. 2018). Such a trend can motivate local fishers to use their knowledge systems to increase their harvests instead of protecting their coastal and reef fisheries (ibid.), yet considered as either fully- or over-exploited (Gillett, Lewis & Cartwright 2014; Lee et al. 2018). In addition, these fisheries are threatened by destructive and illegal fishing, the direct and indirect effects of climate change (including coastal erosion), the sedimentation associated with poor farming and logging practices, the increasing use of pesticides, the widespread pollution of coastlines, etc. (Bell et al. 2011; Veitayaki et al. 2014:28). At the same time, there is increasing acknowledgement of the crucial role of *iTaukei* knowledge for developing effective natural (in particular marine) resource management

initiatives (Dacks et al. 2018) as well as for facilitating sustainable development planning and policy making (Veitayaki 2002).

Nowadays, in the context of biodiversity conservation, natural resource management, sustainable development, and climate change issues, indigenous knowledge systems are often seen as bodies of knowledge accumulated over hundreds of generations and that the world needs (e.g., Ens et al. 2012:101). They are usually considered through the prism of their ecological rationality only (Artaud 2014). However, from an indigenous perspective, these knowledge systems involve a way of life, including practical skills, a way of being-in-the-world, a worldview, values together with an ethic (rather than just bodies of knowledge), and they have to be understood holistically (rather than being compartmentalized and/or reduced to their ecological aspects) (McGregor 2004:79-80; Nadasdy 2003:60-113; Roué 2012). They indeed contribute to reproduce societies in their sociobiological, socioeconomic, sociocultural, sociospiritual, and sociopolitical dimensions. In Fiji in particular, Unaisi Nabobo-Baba (2006) has established that *vanua* (universal whole and overall interconnectedness), *i tovo vakavanua* (customs, acceptable customary behaviours, values/ideas), *lotu* (spirituality and worship) and *veiwekani* (kinship ties and relationships) are four inseparable forms of important knowledge and that Silence, Clan boundary, Space and Gifting are the main ways of knowing.

This paper aims to highlight that the concept of *overfishing* – a decisive driver of today’s coastal and reef fisheries management efforts in Fiji and beyond – tends to veil the “connectedness in all things” (ibid.:77) that is at the core of the *iTaukei* epistemology. It also advocates for a framing of coastal and reef fisheries management efforts that systematically (1) builds upon the “relational ontology” (Poirier 2008) inherent in the *vanua*, which represents the main foundation of *iTaukei* knowledge⁵ (Nabobo-Baba 2006:77-78), and (2) involves the local customary and religious leaders in accordance with their own worldview and values. Our purpose is thus to provide some thoughts on the role of social sciences in tackling the power asymmetries still underlying most endeavours to combine indigenous knowledge systems and western ecological science through a focus on those combinations aiming to address so-called *overfishing* issues.

This paper is based on qualitative data separately collected by the authors in several parts of Fiji, in the context of recent research projects including a focus on today’s relationships of *iTaukei* Fijians with their customary fishing grounds (*iqoligoli*) as well as with a few culturally significant marine species. E. Fache’s ethnography focused on Gau, Fiji’s fifth biggest island (in the Lomaiviti Province), where she conducted four months of fieldwork between April and October 2016, then a one-month follow-up fieldwork in late 2018. Her immersion in village life allowed for the participant observation of daily activities, involvement in collective events (such as meetings, workshops, religious gatherings, etc.), informal discussions in these various contexts, (unrecorded) interviews with various categories of people, and participatory data-collection methods (that involved drawings, ranking activities, mental maps). S. Pauwels has been regularly doing fieldwork in Fiji, especially on Lakeba Island (Lau Province), since 2005. Between 2014 and 2017, she also conducted five months of fieldwork in diverse places on Lakeba, Vanua Levu, Vanua Balavu, the Mamanuca and the Yasawa Islands, in order to understand why and how spawning activities of various reef species were seen by these sites’ inhabitants as impacting the fertility on land. She conducted this study with two marine

⁵ “Knowledge of and about one’s *vanua* is [...] the cultural universal that includes the three other [important and interconnected] knowledges: *lotu*, *i tovo vaka-vanua* and *veiwekani*.” (Nabobo-Baba 2006:78)

biologists and one specialist of natural resource management and sustainable development. The methodology involved non-directive interviews (most of them unrecorded) and informal discussions with ritual specialists and villagers, the participant observation of the rituals held to collect the targeted reef species during the spawning season, and the assessment of reef life during the same period.

The crossing of the authors’ data was further elaborated through triangulation with complementary records, mainly on leadership changes in Fiji, and with secondary sources, mainly on the *iTaukei* concept of *vanua*.

2. Interconnectedness between human and fish behaviours

We observed that *overfishing* remained a relatively abstract concept for most villagers we encountered in different parts of Fiji. From an *iTaukei* point of view indeed, human and fish behaviours are intrinsically interconnected, not only from ecological and economic perspectives, but also through fundamental sociocultural, spiritual and political relationships.

The concept of *overfishing* is sometimes used in marine conservation awareness-raising contexts. For instance, a LMMA was established in 2001 in the coastal waters of Tikina Vanuaso, one of the three districts of Gau Island, to “protect marine resources and support better lives into the future” (Veitayaki et al. 2007:289; see also Fache & Breckwoldt 2018). The “Draft Vanuaso Tikina Marine Resource Monitoring Plan” developed in 2001 mentioned, among the questions/problems to be addressed, “*qolivi vakasivia ni qoligoli*” (Tawake, Fong & Veitayaki 2001:61), translated into English by “overfishing” (pers. comm. with Mere Veitayaki, October 2017).⁶ In 2016 on the same island, in the context of a discussion about what could be done to better protect the reef, school children (Year 6-8) also mentioned “overfishing” and “overharvesting”⁷ issues, that they articulated as the catching of all the fish on the reef and especially of “small” (i.e., immature) fish. This probably reflects their reception of formal teachings on the matter. The social studies curriculum then used for Year 6 children indeed included a focus on “use and management of resources” aiming to “investigate the different sea and fresh water resources that are available in Fiji and discuss how they can be utilized wisely”.⁸

Yet, the villagers generally did not use the *overfishing* category to explain to us why some marine species, which were once abundant, had become uncommon or rare. For instance, according to the traditional Fijian calendar (e.g., Gatty 2009; Veitayaki 2002:396), April is supposed to be the month when *Tugadra* (Bigeye scad, *Selar crumenophthalmus*, Carangidae family) is plentiful. On Gau Island, *Tugadra* is the totem fish of Malawai village, where it is also a highly appreciated food. In 2003-2004 as well as in 2016 and 2018 (Fache & Breckwoldt 2018), fisherwomen of this village mentioned, in discussions and interviews,⁹ periods of several years during which they only rarely caught this small pelagic fish. Community members gave

⁶ Literally, “*qolivi vakasivia ni qoligoli*” means fishing excessively in the customary fishing grounds.

⁷ “Overharvesting” being used as a translation, by the children concerned themselves, of the Fijian phrase “*na kena vakamate vakaveitalia na ika*”.

⁸ Quotation from the following document, that the head-teacher of one of the two schools concerned referred to in May 2016: Social Studies Syllabi – Years 5 & 6, Ministry of Education, Heritage and Arts, Curriculum Development Unit, Fiji, 2015.

⁹ With more than half of the women of the village, which counted a total of about 130 inhabitants in 2016-2018.

several sociocultural interpretations of the sudden (near) absence of this fish in their customary fishing ground, such as:

- the displacement and thus the loss of effectiveness of their “*Tugadra* stone” that used to ensure the abundance of this fish (cf. Fig.2),
- competitions and tensions between social groups,
- the misbehaviours of some inhabitants (in particular a lack of respect for the chief and/or of devotion), and
- the hidden pregnancy of women, from this village or the neighbouring one, who fished *Tugadra* the last time it was abundant in these waters.

The latter interpretation was the one most often mentioned by the women. Some people also referred to a Christian register of explanations. For instance, a member of the All Nations Christian Fellowship congregation in his early sixties revealed that, in this local setting as in many other Pacific islands, the abundance of fish is considered as ultimately controlled by God (Foale et al. 2011:362). When asked in 2018 why *Tugadra* was no more as abundant as it used to be, he turned to both his Fijian and English Bibles, and first cited Hosea 4:1-3:

¹ “Hear the word of the Lord, O children of Israel, for the Lord has a controversy with the inhabitants of the land. There is no faithfulness or steadfast love, and no knowledge of God in the land;

² there is swearing, lying, murder, stealing, and committing adultery; they break all bounds, and bloodshed follows bloodshed.

³ Therefore the land mourns, and all who dwell in it languish, and also the beasts of the field and the birds of the heavens, **and even the fish of the sea are taken away.**” (quotation from the Bible - Hosea 4:1-3; our emphasis)

He then explained – using two other specific Bible verses (2 Chronicles 7:13-14) – that, more generally, when people “go out from God’s way” (quotation from the interviewee), He always intervenes in three domains: he brings forth bad weather, takes away their food, and sends them sickness. This is to make them realize that they have to repent and change, that is to “humble themselves and turn from their wicked ways” (quotation from the Bible - 2 Chronicles 7:14). If they do so, God “will hear from heaven and will forgive their sin and heal their land” (idem).

Some community members also considered the possibility that *Tugadra* could have migrated near another Fijian island or might avoid Malawai’s waters because of the ever-increasing number of small open fibreglass boats operating there. Though, they did not refer to the *overfishing* of *Tugadra*, either through local fishing practices (usually involving effective net fishing), or in relation to the pressure from the tuna fishery in Fiji (as bycatch or baitfish). Yet, these linkages seem plausible from a scientific point of view (Gillett, Lewis & Cartwright 2014; Muehlig-Hofmann 2007:196; Smith-Vaniz et al. 2015).



Fig.2: The tip of the “*Tugadra* stone”, most of which is now buried near the community hall and the seawall of Malawai village (Source: Photo by E. Fache, October 2018)

Such multiple interpretations of marine species dynamics, mixing sociocultural, religious and other registers, are not specific to this case study. For instance, in Nacula village on Nacula Island, *Balolo* (Palolo worm, *Eunice viridis*, Eunicidae family) is a delicacy, but its seasonal appearance in October-November is also deemed to enhance future fertility and life of everything on the land (people, animals, plants and food crops, etc.)¹⁰. The villagers expect the casting off of its epitokous segments and their quick release of gametes in the environment eight days after full moon, but explain that one cannot mention this phenomenon in conversations in the days preceding it, because *Balolo* would hear this and therefore hide itself. Moreover, the villagers consider that *Balolo* will not appear, or not in abundance, if there have been recent tensions and conflicts within the village or if, the previous year, after the customary offering to the chief, the surplus of this delicacy was sold instead of being shared with relatives. In case of non-appearance of *Balolo*, the villagers also refer to context-related conditions, such as wind directions, tide patterns and moon phases, and some even blame the many tourist boats

¹⁰ Fertility and life increase in the sea were never mentioned in interviews, yet the seasonal appearance of *Balolo* is expected to attract inside the reef more fish, feasting on this resource.

operating in their waters. When *Balolo* appears in abundance, this is ultimately regarded as a blessing, a gift of God.¹¹

In Nagigi village on Vanua Levu Island, *Deu* or *Ki* (Yellowstriped goatfish, *Upeneus vittatus*, Mullidae family, cf. Fig.3) is said to have become rare because some people, the year before, ignored their exchange obligations (here again, they sold their surplus instead of sharing it with their relatives), or because a few ate the fish the wrong way (one cannot kill it by biting it and its guts have to be eaten). Others claim this fish has become rare because it is afraid of swimming under the new bridge built as part of the Hibiscus highway (cf. Fig.4) and it is therefore unable to reach its spawning ground. In another village of Vanua Levu, Loa, the villagers explain that one of their culturally significant fishes has not spawned in their waters since they “lent their fish to a neighbour village which had to organize a big feast and to feed a lot of people, [but] unfortunately [...] forgot to return the fish” (group interview, 28 October 2016).



Fig.3: *Deu* or *Ki* freshly caught in Vanua Levu’s waters (Source: Photo by S. Pauwels, October 2016)

¹¹ In Fiji, biologists do not mention any *overfishing* concern related to *Balolo*. However, in Samoa, the commodification of Palolo worm is raising sustainability concerns (pers. comm. with Joeli Veitayaki, February 2019).



Fig.4: Women passing under the new bridge in Nagigi, Vanua Levu, to meet the *Deu* or *Ki* (Source: Photo by S. Pauwels, October 2016)

In these different cases, the local interpretations of the decline of a culturally significant fish or the non-appearance of a seasonal marine invertebrate in the usual coastal or reef fishing grounds are mainly related to: (1) transformations of the physical dimension of the land-sea interface (development of the residential space and of new infrastructures, increasing number of boats); (2) non-compliance with customary and/or religious prohibitions and norms; (3) a lack of harmony in relationships within and/or between social groups. The two last issues imply a twofold punishment: by the fishes themselves and by the Christian God. On the one hand, fishes are not considered as mere objects of human perception and consumption, but as subjects whose behaviours are intrinsically connected to human behaviours: if humans do not behave as they should, individually or collectively, these fishes will know and hide. Some community members, for example, therefore predict such or such fish might not be as abundant as expected during the year or the next one when they consider that their fellows' behaviours are not acceptable by customary and/or religious standards:

“Appropriate behaviour is based on the tenet that the spiritual and the material worlds are interconnected; respect for people, resources, the ancestors, and God, governs all important behaviours and values.” (Nabobo-Baba 2006:88)

In that respect, discourses related to the decline or non-appearance of marine species allows for a form of social criticism, pointing out local dysfunctions and disruptions, or condemning the

evolution of part of the *iTaukei* society (Nolet 2018). On the other hand, God is considered as seeing and controlling everything, and the respect of God’s way as governing the abundance of fish in the present and in the future. In other words, the abundance of fish is seen as a divine blessing together with the sign that everything is well on the land and in the sea, whereas the decline of specific fish populations or of the wealth of a specific fishing ground is regarded as a manifestation of God’s almighty power, aiming to make people consider their wicked ways, follow His will and worship Him.

Such Christian perspectives are often associated with non-Christian/indigenous elements of spirituality, yet less “publicly or loudly declared” (Nabobo-Baba 2006:87). For instance, the turtle fishers of Qoma Island reckoned that their ancestral spirits would provide them with their desired catch if they pleased them by being righteous (Veitayaki 2002:400). More recently, in the context of a national ban for the harvest and sale of sea turtles, their eggs and any other part or product (e.g., turtle shells), the villagers of Tubou on Lakeba Island considered they were nevertheless allowed to eat the sea turtle which came to “offer itself” in front of the beach house of a famous turtle fisher the very morning of his death; a reasoning that was acknowledged by the staff of the local fisheries station.

The fact that, outside marine conservation awareness-raising contexts, villagers generally do not use the *overfishing* category spontaneously to make sense of the decline of fish populations does not mean they do not understand what it implies. For instance, during numerous discussions about the state of their coastal resources, Lakeba islanders were willing to accept the idea they sometimes *overfished* to be able to send large amounts of fish to their relatives living in the capital city, Suva. However, they then showed the pictures full of smiles posted by these relatives on Facebook while eating the fish they got on time for their Sunday lunch. They conceived the act of giving particularly appreciated fish in great quantity as a crucial component of their reciprocal connections with city dwellers. Still today, indeed, “[i]n any form of good exchanges, Fijian values emphasise the principle of giving the best and the most” (Ravuvu 1983:42). In addition, the good exchanges between villagers and urban dwellers have far-reaching implications in the current context of intensifying internal migrations between outer islands and the capital city, both ways (Breckwoldt 2012).

Obviously, the circulation of complementary items – fish but also starch food (cassava, taro, yam), coconuts, mangoes, etc. from the outer islands versus manufactured products from the capital city – reflects the sharing of surpluses on the one hand and the supplying of goods that are only available in town on the other. It thus enables people to meet their needs through kin-based networks. But it also allows for the maintenance of deep and vibrant relationships within these networks. Such relationships ensure villagers their hosting in town during their temporary visits or for longer periods (for studies, childbirth, hospital care, etc.). They also entitle city dwellers to claim their own and their descendants’ legitimate membership in the *vanua* (see below) they are identified with (Pauwels 2015a). This membership entails in particular rights to access, use and manage specific land areas and customary fishing grounds, to settle back into one’s home village (whatever the reasons involved), and/or to be buried in this village (which greatly strengthens the rights of one’s descendants).

3. Knowledge combination initiatives beyond the Nature/Society divide

These examples illustrate the crucial importance of emphasising, in fisheries management initiatives implemented in Fiji (whatever their drivers, stakeholders and contours), the multi-faceted interplay between fishery and community dynamics experienced by *iTaukei* Fijians. Indeed, in order to define fisheries management initiatives which are truly relevant for *iTaukei* Fijians, it is essential to challenge the western dualistic perspective considering nature and society as autonomous realms (Descola 2005) and therefore “allow[ing] people to see themselves as separate from and thereby able to control (and protect) the natural world” (Foale 2006:131). In other words, all the stakeholders of these fisheries management initiatives should seriously accept the fact that the status of specific fish stocks is not only dependent on the sustainability of fishing activities, and thus on the economic situation and ecological awareness of the resource-owning and resource-using groups. It is also – or maybe above all – dependent on the relational dynamics and the sociocultural, spiritual and political balance within and between these groups (see also Nolet 2018).

This derives from, and is at the core of, the *iTaukei* concept of *vanua*, which does not involve any division between nature and society or between objects and subjects. The *vanua* is “physical in nature” (Nabobo-Baba 2006:77): it includes the land, the sea, rivers, mountains, forests, reefs, plants, (terrestrial and marine) animals, etc. as well as people who identify with all these. Yet, it also includes the socio-cultural and socio-political systems, the “traditions and customs, beliefs and values, and the various other institutions established for the sake of achieving harmony, solidarity and prosperity within a particular social context” (Ravuvu 1983:70). Hence it consists in “**a theoretical whole** that embraces all people and their relationships with others and with the land, spirits, resources and environment; the social spaces between peoples; and the spaces we designate in our minds for certain positions or roles in society” (Nabobo-Baba 2006:77-78; our emphasis). In this theoretical whole, fishes are fully part of the social field, which means that people’s behaviours and theirs are indivisible. Their degree of abundance mirrors people’s degree of respect for ceremonial and family obligations, for spirits¹² and God’s will, for the chiefs and other leaders, and so on. The all-encompassing concept of *vanua* indeed reveals a “relational ontology” (Poirier 2008) in which, on the one hand, all non-humans are bestowed with consciousness and intentionality, and on the other hand, personhood is conceived in terms of relationships to other human as well as non-human agencies. This ontology implies that the relationships between humans and non-humans (1) are deemed truly reciprocal and negotiated, (2) are an intrinsic and dynamic part of local ways of being-in-the-world, and (3) are embodied to the extent that they are constitutive of one’s bodily-self and identity (ibid.:77).

In particular, in the context of the understandings and experiences of the world embedded in the *vanua*, the relationships (and concrete interactions) of people with each other and with marine resources are closely interconnected and fundamentally intersubjective. Therefore, issues regarding marine resources are very likely to be conceived and experienced by *iTaukei* Fijians as implying or resulting from issues regarding interpersonal/sociopolitical relationships within the resource-owning or resource-using groups concerned, or between the latter and other groups or non-human agencies. These issues have thus to be jointly addressed: caring for marine resources, caring for people, and caring for relationships between all human and non-human agencies, are deeply entangled processes in the daily life of the *vanua*. Together, these processes

¹² That is, “invisible supernatural power in the form of spirit gods of a cosmological nature, as well as spirits of dead ancestors and other kinsmen” (Ravuvu 1983:85).

contribute to making it possible to pass on each *vanua* to the next generations. How then can this responsibility become the cornerstone of future fisheries management initiatives?

4. The role of customary and religious leaders

4.1. Chiefs

In Fiji, the well-being (*sautu*) of the *vanua* is still seen as requiring chiefs, and “good chiefs” are still considered as those who bring general prosperity (Pauwels 2018; Pauwels in press) “by fulfilling their role in ceremonial exchange” (Turner 1992:291). In return, “[c]ommoners ‘make’ chiefs by ritually installing them in office”, which results in “relations of inequality and interdependence (which do not preclude conflict) [...] expressed and reproduced in the practice of everyday” (ibid.).

However, throughout many parts of Fiji, chiefs have not been installed for a long time. Even two of Fiji’s highest-ranking chiefs, the Vunivalu of Bau and the Tui Nayau of Lau, have not been installed for decades for various reasons, such as the difficulty in identifying the customary title holders and/or the group who should designate them, or even because of the idea that nowadays other kinds of leadership should prevail. This non-continuation of the ritual creation (*bulia*) of chiefs at the level of the *matanitu* (federation of *vanua*), the *vanua* (see above) or the *yavusa* (clan) is sometimes invoked to explain a perceived lack of respect for the chiefs, increasingly said to be selfish and self-serving, making unilateral decisions, and so on. Uninstalled chiefs are indeed not considered as *real* chiefs performing their role in connection with their ancestors, their ancestor gods and the Christian God. They are regarded as deprived of *mana*¹³ and therefore do not inspire unconditional respect.

This situation has implications that should be taken into account in the framework of fisheries management initiatives:

- If the chieftaincy is not as it ought to be, prosperity cannot be as it ought to be;
- Temporary incumbents (i.e., people holding a chiefly position until the rightful titleholder is able to take it up) and uninstalled chiefs have less political influence and are less respected than installed chiefs;
- People chosen to act as village leaders in specific contexts and/or for specific purposes (e.g., village headmen or *turaga ni koro*), people chosen to enforce specific norms and rules (e.g., honorary fish-wardens), and both the head and members of local committees (e.g., Marine Managed Areas and Qoliqoli Committees, Veitayaki et al. 2014), will not get a leadership comparable to that of the chiefs.

Our hypothesis is that the chiefs promoting fisheries management initiatives based on a holistic approach embracing the whole *vanua*, and doing so in close dialogue with village leaders and local committees, might boost both respect for these initiatives and respect they are held in by

¹³ *Mana* is a complex concept, which has been transformed through the processes of Christian conversion, colonial and indigenous state formation, and indigenous resistance and sovereignty (Besnier and Jolly 2016: 362), and has therefore no straightforward translation. The Fijian Methodist theologian Ilaitia Tuwere considers that “[p]ower and authority are dominant forces in the concept of *mana*, not only in the symbolic sense but also in political terms” (2002:158).

their people¹⁴ (yet the achievements of uninstalled chiefs will necessarily be less compared to those of the installed chiefs). Chiefs might indeed be considered as maintaining and passing on crucial knowledge of and about the *vanua*, while demonstrating its value in/for endeavours to tackle marine resource management issues. They might also be valorized as contributing to the building of local empowerment pathways (instead of appearing as egocentric and/or as making unilateral decisions). They are well placed as well to emphasise the responsibility of passing on the *vanua*, in a relatively undisturbed state, to future generations, for the well-being of everybody.

4.2. Religious leaders

Patrick Nunn (2017) has highlighted that, in the Pacific, most interventions by outside agencies seeking to help people adapt to the effects of climate change have proved neither effective nor sustainable. He connects these failures with the “sidelining of God”: such interventions are planned in secular ways and communicated using secular language, instead of being framed in the terms of the spiritual engagement and agenda of the communities concerned.¹⁵ In Fiji, the influence of entangled Christian¹⁶ and indigenous spirituality and associated worship (*lotu*) is particularly all-encompassing. It is considered as “important knowledge” and as “the tenet which should underpin the *vanua*” (Nabobo-Baba 2006:87). It is also obviously central to contemporary life, in which a spiritual explanation is given to almost everything (*ibid.*), while every event and activity (including every fishing session) usually begins and ends with a prayer.

P. Nunn (2017) therefore asserts that external interventions for climate-change adaptation in Pacific Island communities should take into account that, for these communities, “the most influential messages are those that engage with people’s spiritual beliefs, and the most influential communication channels are often those that involve religious leaders [... who] can heavily influence practical discussions at every level of the community”. It seems to us that these arguments could be extended to external interventions aiming at helping Pacific Island communities to improve their fisheries management strategies. These interventions too are likely to be more effective and sustainable if they engage with communities’ spiritual beliefs and involve religious leaders, eventually through partnerships with faith-based organizations (McLeod and Palmer 2015).

Our hypothesis is that, in the case of Fiji, the role of the religious leaders¹⁷ in the domain of fisheries management would need to be complementary to that of the chiefs. This complementarity could be based on the fact that the authority of both religious leaders and chiefs are nowadays thought of as derived from the Christian God, thus as being of a divine

¹⁴ In a context where “customary leaders can make the best decisions for their people only if they are respected by people who understand and trust them” (Veitayaki et al. 2014:70).

¹⁵ For instance, in 2013 most students of the University of the South Pacific (USP) – the future elite, decision-makers and policy-makers of the Pacific Islands region – were spiritually engaged, with 81% regularly attending religious services, among which 88% attending religious services once or more than once a week (Nunn et al. 2016).

¹⁶ In 2007, about 64% of the Fijian population – then counting 837,271 people – categorized themselves as Christians. In 1996, 99,24% of the *iTaukei* population – then counting 393,575 people and representing about 51% of the total Fijian population – claim to be members of a Christian denomination, among which two thirds declared to be Methodists (Fiji Bureau of Statistics 1996, 2007).

¹⁷ For the Methodist Church: ministers or *italatala*, Church elders / lay pastors or *ivakatawa*, local Church wardens or *tuirara*, etc.

nature (Tomlinson 2009; Tuwere 2002). It could be performed, in particular, “during worship, when biblical passages are integrated with *vanua* knowledge” and, thereby, important knowledge “deemed to be guided by familiar *vanua* spirits or God” is “taught and learned” (Nabobo-Baba 2006:117&127).

These religious leaders’ function could include the translation of scientific concepts into “worldviews that are more easily understandable and acceptable by local populations” (McLeod and Palmer 2015:240) and *vice versa* (i.e., the translation of Fijian worldviews for western science practitioners). We observed such translation endeavours in 2016 during an awareness workshop focused on organic farming, however not implemented by a religious leader but by the NGO *iTaukei* agent running this workshop. The latter used religious arguments to promote the application of organic (instead of chemical) insecticides and pesticides:

“The use of **chemical** insecticides and pesticides only shows us how greedy man is and how ignorant he is to Gods purpose for the world he created. **Organic** pesticides and insecticides are Gods way of supporting the life cycle. It is important that we let each of God’s own creation continue to live and serve their creator in order to sustain the world each one live in. God created everything for his purpose and Glory. There is no meaningless and purposeless creative work of God.” (extract from a document given to each participant of the workshop, held in Tikina Vanuaso, Gau Island, in May 2016; our emphasis)

This illustrates how religious views can be used – and are sometimes used in Melanesia – to make a case for biodiversity conservation (e.g., Foale, Dyer & Kinch 2016; McLeod and Palmer 2015).

Unfortunately, it seems that Christian teachings more often tend to impede rather than to encourage fisheries management. As seen above, many *iTaukei* fishers consider that their Christian God plays an instrumental role in the health and abundance of marine resources. This way of thinking can lead to a kind of fatalism (we cannot do anything... because God does whatever pleases Him) – or, on the contrary, a kind of optimism (God will provide... if we worship Him well) – about declining abundances of fishery resources, which “often precludes local management initiatives in situations where stocks are over-harvested” (Foale 2006:130). Religious leaders seem to be the best positioned to reverse such perspectives, while engaging with people’s spiritual beliefs (instead of denigrating and trying to eliminate the latter since they are in opposition to the reasoning of western ecological science).

That said, there are various Christian denominations in Fiji (Methodist, Catholic, Anglican, Seventh Day Adventist, Jehovah’s Witnesses, Assemblies of God, All Nations Christian Fellowship, etc.) and it seems that tensions often emerge between their members and/or leaders in rural settings, in particular about contradictory interpretations of the Bible. It is therefore necessary that, when a fisheries management initiative concerns several coexisting denominations, the corresponding religious leaders are all involved to jointly develop and communicate a unified message. This requires a focus on the common spiritual beliefs, values/ideals, norms and practices, rather than on divergences. In our experience however, while multi-faith initiatives promoting the idea that humans are the stewards/custodians of God’s creation are gaining momentum,¹⁸ and the Methodist Church explicitly calls for

¹⁸ For instance, the COP23 Multi-Faith Charter, promulgated by a group of faith-based organizations in Fiji with the support of the COP23 Presidency Secretariat, asserted: “We believe that we are not the owners of the earth,

environmentally conscious behaviour changes,¹⁹ this message is not (yet) necessarily relayed at the local level by the leaders of other Christian denominations.

Moreover, it is necessary to take into account the influence that religious leaders already have on existing marine management arrangements in Fiji and that might contribute to undermine (rather than improve) the sustainability of local fisheries. There are for instance cases where local churches encourage the establishment of a small-scale marine closure (*tabu area*) in a portion of a LMMA, not for conservation purposes, but with the idea of stockpiling resources therein for a few years, then harvesting and selling enough of these resources for the construction or repair of a church (e.g., Fache & Breckwoldt 2018). There are also cases where islanders decide to temporarily open their periodically harvested *tabu area* to raise funds for the periodic church contributions required of each villager (*solu*) (e.g., Jupiter et al. 2012). These intensive harvest events can remove the substantial benefits to fisheries from *tabu areas*, in particular almost all their positive effects of protection on fish biomass and subsequent reproductive output (ibid.). More generally, the large sums of money needed to take part in the fund-raising occasions organized by religious leaders might represent a more important driver of household fishing than household fish consumption (see Dacks et al. 2018). These examples show that the religious leaders’ leverage in the domain of fisheries management might be twofold if their involvement is not combined with a thorough self-assessment of the pressure that church duties, projects and events put on local marine resources and an ongoing reflection on how this pressure can be reduced to a minimum.

5. Conclusion

ITaukei Fijians generally retain a deep and constantly evolving knowledge of the ecology and dynamics of culturally significant coastal and reef fish. The recording of this knowledge is all the more crucial to determine fisheries management priorities and strategies than there is neither written historical data nor adequate present-day monitoring data on Fiji’s coastal and reef fisheries (Gillett, Lewis & Cartwright 2014). Social sciences offer data collection tools – including participatory ones²⁰ – which could be instrumental for exploring, recording and communicating this local knowledge, while contributing to its intergenerational transmission.

But social sciences can also significantly contribute to the rethinking and reshaping of knowledge combination endeavours, in particular in the domain of fisheries management. We emphasised in this paper that, in Fiji, all fisheries management initiatives should be developed and implemented in the terms of the *iTaukei* relational ontology, even though the western ecological science is very much rooted in the dualistic conception of Nature as separate from

but are its custodians, and that we are entrusted by the Creator with the stewardship of this planet. We are responsible for the care of our rivers and oceans and all the flora and creatures that depend on the earth for life. We cannot fail to leave a healthy planet to our children and all future generations.” (<http://cop23multifaith.com/charter/> - Accessed on 18/05/2019)

¹⁹ For instance, the Methodist Church was one of the first institutional champions of the 4FJ campaign, which backs up the new national legal ban on the fishing, sale and export of all species of Grouper (*kawakawa*) and Coral Trout (*donu*) during their peak spawning months (June–September).

²⁰ For instance: the Photovoice methodology, which allows participants to identify, document, and represent their community’s strengths and concerns from their own perspective through the use of photography (Wang et Burris 1997; Sutton-Brown 2014); participatory drawings, involving adults and/or children (Calandra 2013; Pagezy, Carrière & Sabiot 2010); etc.

Society/Culture. Taking into account the *iTaukei* holistic knowledge system, which considers human and non-human beings, behaviours and agencies as intrinsically interconnected, indeed appears as a fundamental prerequisite for the scientific and conservationist concepts, including *overfishing*, to make sense for the communities concerned.

Yet, when the sociocultural, spiritual and political behaviour of the people, together with social disruptions and issues, are thought to influence the behaviour – therefore the abundance and the availability – of fishes, *overfishing* might not be the right concept to argue in favour of fisheries management, sustainable development, marine conservation, etc. This concept indeed does not spring from, and is not congruous with, the *iTaukei* worldview in which interconnectedness is paramount, since it brings into focus a cause-effect relationship between fishing pressure and the state of fish stocks. Therefore, the joint objective of the various stakeholders of fisheries management initiatives implemented in Fiji and based on knowledge combination endeavours should not be framed in terms of stopping or, at least, reducing *overfishing*. The questions are rather: How to maintain or restore fish stocks, when their depletion seems to be the effect of *overfishing* from a scientific point of view but when, in the terms of the involved communities’ worldview, this depletion is not only or primarily attributed to people’s fishing activities? How to make sure that the fisheries management measures or regulations aiming at limiting the negative ecological impacts of coastal/reef fishing practices do not challenge the key values of the society concerned? For example, when the scarcity of a culturally significant fish is locally observed, whatever its cause, the fisheries management stakeholders could endeavour to jointly find ways to maintain the sociocultural value of fishing practices (ritual ones and others) targeting this fish while limiting the potential negative ecological impacts of these practices. For instance, in the case where a fish is usually caught on its way to its spawning ground, fishing after rather than before spawning might represent a consensual change.

We also highlighted the importance of the involvement of customary and/or religious leaders in both the definition and implementation of fisheries management initiatives. These leaders indeed appear as the most appropriate mediators²¹ between their communities and their external partners (scientists and other experts, NGO agents, fisheries officers, etc.), as well as between the *iTaukei* holistic knowledge system and western ecological science. *Lotu* (spirituality and worship) is a base of the universal concept of *vanua*, and each *vanua* is a hierarchical order within which the chiefs as well as the religious leaders convey God’s *mana* and divine blessings, allowing balance along with abundance on the land and in the sea. These leaders therefore embody the highest authority to introduce and enforce changes and rules regarding access, use and management of the customary fishing grounds (*iqoliqoli*) and the marine resources therein. They also seem to be the best positioned to articulate such locally grounded changes and rules with national regulations, regional strategies, NGO expectations, etc. while ensuring that they respect their communities’ worldview along with their way of being-in-the-world and values.

Yet, religious leaders’ degree of engagement with ecological concerns and interest in sustainable fisheries management may greatly vary. Religious leaders’ encouragement of environmentally-friendly practices might also be challenged by a key church practice that, in some cases, contributes to the pressure on local marine resources: fund-raising, on a regular

²¹ This role of mediator would not be new for the Fijian chiefs. While they once played an instrumental role in connecting colonial centers with village hinterlands in the frame of the British colonial system of indirect rule (1874-1970) (Pauwels 2015b), they now tend to find themselves “mediating local realities and larger spheres of national and transnational interaction” (Lindstrom & White 1997:3).

basis as well as for religious gatherings or specific projects. Based on its long experience of working with communities to achieve community-based adaptive management, the Fiji Locally Managed Marine Area (FLMMA) network seems well equipped to identify such issues and, more generally, provide information and guidance to reduce the risk of ambivalence in the proposed role of customary and/or religious leaders. Both this task and the upstream promotion of the involvement of these leaders in fisheries management initiatives could, for instance, be integrated into the measures implemented as part of the FLMMA network’s voluntary commitment to a scaling-up of LMMAs to 100% of Fiji’s customary fishing grounds (or *iqoliqoli*), formulated in the context of the first UN Ocean Conference in 2017.²²

We are also conscious that “the combination of subsistence and [usually quite small-scale] commercial fishing pressure is no longer sustainable” in Fiji’s customary fishing grounds (Veitayaki et al. 2018:376), and that in addition poaching is commonplace and represents a great challenge in LMMAs (Veitayaki et al. 2014). But we would like to advocate for the systematic consideration of these issues “in the manner of the *vanua*” (*vakavanua*).

²² See <https://oceanconference.un.org/commitments/?id=21668> (Accessed on 14/07/2019).

References:

- Aalbersberg, Bill, Alifereti Tawake, and Toni Parras. 2005. Village by village: Recovering Fiji’s coastal fisheries. IAS Technical Report N°2005/04. Suva: University of the South Pacific (USP), Institute of Applied Sciences (IAS).
- Artaud, Hélène. 2014 De l’“efficacité” symbolique des interdits à leur fonctionnalité écologique. Variations sur le “tabou” en milieux maritimes. *Revue d’ethnoécologie* 6.
- Barbour, Wayne, and Christine Schlesinger. 2012. Who’s the boss? Post-colonialism, ecological research and conservation management on Australian Indigenous lands. *Ecological Management & Restoration* 13(1): 36-41.
- Bell, Johann D., J.E. Johnson, A.S. Ganachaud, P.C. Gehrke, A.J. Hobday, O. Hoegh-Guldberg, R. Le Borgne, P. Lehodey, J.M. Lough, T. Pickering, M.S. Pratchett, and M. Waycott. 2011. Vulnerability of tropical Pacific fisheries and aquaculture to climate change: Summary for Pacific Island countries and territories. Noumea: Pacific Community (SPC).
- Besnier, Niko, and Margaret Jolly. 2016. Afterword: Shape-shifting mana: Travels in space and time. In *New mana: Transformations of a classic concept in Pacific languages and cultures*, ed. Matt Tomlinson and Ty P. Kāwika Tengan, 349-368. Canberra: ANU Press.
- Breckwoldt, Annette. 2012. Migrations insulaires et aspects communautaires connexes: Incidences sur la gestion communautaire des ressources marines. *Ressources marines et traditions* 29: 3-14.
- Calandra, Maëlle. 2013. Faire dessiner le terrain: La nature à “risques” et les jardins de subsistance de Tanna et Tongoa (Vanuatu). *Techniques & Culture* 60: 182-201.
- Dacks, Rachel, Tamara Ticktin, Stacy D. Jupiter, and Alan Friedlander. 2018. Drivers of fishing at the household scale in Fiji. *Ecology and Society* 23(1): 37.
- Descola, Philippe. 2005. *Par-delà nature et culture*. Paris: Gallimard.
- Ens, Emilie Jane, Max Finlayson, Karissa Preuss, Sue Jackson, and Sarah Holcombe. 2012. Australian approaches for managing “country” using Indigenous and non-Indigenous knowledge. *Ecological Management & Restoration* 13(1): 100-107.
- Ens, Emilie Jane, and Tein McDonald. 2012. Caring for country: Australian natural and cultural resource management. *Ecological Management & Restoration* 13(1): 1.
- Fache, Elodie. 2017. Mediation between indigenous and non-indigenous knowledge systems: Another analysis of “two-way” conservation in northern Australia. In *Entangled territorialities: Negotiating indigenous lands in Australia and Canada*, ed. Françoise Dussart and Sylvie Poirier, 91-116. Toronto: University of Toronto Press.
- Fache, Elodie, and Annette Breckwoldt. 2018. Small-scale managed marine areas over time: Developments and challenges in a local Fijian reef fishery. *Journal of Environmental Management* 220: 253-265.
- Fiji Bureau of Statistics. 1996. Population by Religion and by Race - 1996 Census of Population. <https://www.statsfiji.gov.fj/statistics/social-statistics/religion>. Accessed 13 March, 2019.
- Fiji Bureau of Statistics. 2007. Population by Religion - 2007 Census of Population. <https://www.statsfiji.gov.fj/statistics/social-statistics/religion>. Accessed 13 March, 2019.

- Foale, Simon. 2006. The intersection of scientific and indigenous ecological knowledge in coastal Melanesia: Implications for contemporary marine resource management. *International Social Science Journal* 58(187): 129-137.
- Foale, Simon, Michelle Dyer, and Jeff Kinch. 2016. The value of tropical biodiversity in rural Melanesia. *Valuation Studies* 4(1): 11-39.
- Foale, Simon, Philippa Cohen, Stephanie Januchowski-Hartley, Amelia Wenger, and Martha Macintyre. 2011. Tenure and taboos: Origins and implications for fisheries in the Pacific. *Fish and Fisheries* 12: 357-369.
- Gatty, Ronald. 2009. *Fijian-English Dictionary with notes on Fijian culture and natural history*. Suva: Ronald Gatty.
- Gillett, Robert, Antony Lewis, and Ian Cartwright. 2014. Coastal fisheries in Fiji: Resources, issues, and enhancing the role of the Fisheries Department. Suva: David and Lucille Packard Foundation.
- Govan, Hugh (with various contributors). 2009. Status and potential of locally-managed marine areas in the South Pacific: Meeting nature conservation and sustainable livelihood targets through wide-spread implementation of LMMAs. Suva: SPREP/WWF/WorldFish-Reefbase/CRISP.
- Hastings, Jesse G., Michael K. Orbach, Leah B. Karrer, and Les Kaufman. 2015. MMAS in Fiji. *Coastal Management* 43(2): 155-171.
- Jupiter, Stacy D., R. Weeks, A.P. Jenkins, D.P. Egli, and A. Cakacaka. 2012. Effects of a single intensive harvest event on fish populations inside a customary marine closure. *Coral reefs* 31: 321-334.
- Lee, Steven, A. Lewis, R. Gillett, M. Fox, N. Tuqiri, Y. Sadovy, A. Batibasaga, W. Lalavanua, and E. Lovell. 2018. Fiji Fishery Resource Profiles. Information for Management on 44 of the Most Important Species Groups. Suva: Gillett, Preston and Associates & Wildlife Conservation Society.
- Lindstrom, Lamont, and Geoffrey M. White. 1997. Introduction: Chiefs today. In *Chiefs today: Traditional Pacific leadership and the postcolonial state*, ed. Geoffrey M. White and Lamont Lindstrom, 1-18. Stanford: Stanford University Press.
- McGregor, Deborah. 2004. Traditional ecological knowledge and sustainable development: Towards coexistence. In *In the way of development: Indigenous peoples, life projects, and globalization*, ed. Mario Blaser, Harvey A. Feit and Glenn McRae, 72-91. London & New York: Zed Books.
- McLeod, Elizabeth, and Martin Palmer. 2015. Why conservation needs religion. *Coastal Management* 43(3): 238-252.
- Mercer, Jessica, Dale Dominey-Howes, Ilan Kelman, and Kate Lloyd. 2007. The potential for combining indigenous and western knowledge in reducing vulnerability to environmental hazards in small island developing states. *Environmental Hazards* 7: 245-256.
- Muehlig-Hofmann, Annette. 2007. An interdisciplinary appraisal of community-based marine resource management of a traditional Fijian fishing ground (*qoliqoli*). PhD thesis, Newcastle University.

- Muller, Samantha. 2012. “Two ways”: Bringing indigenous and non-indigenous knowledges together. In *Country, native title and ecology*, ed. Jessica K. Weir, 59-79. Canberra: ANU E-Press.
- Nabobo-Baba, Unaisi. 2006. *Knowing & learning: An indigenous Fijian approach*. Suva: University of the South Pacific (USP), Institute of Applied Sciences (IAS).
- Nadasdy, Paul. 2003. *Hunters and bureaucrats: Power, knowledge, and Aboriginal-State relations in the southwest Yukon*. Vancouver: UBC Press.
- . 2005. The anti-politics of TEK: The institutionalization of co-management discourse and practice. *Anthropologica* 47(2): 215-232.
- Nolet, Emilie. 2018. L’homme et la mer aux Yasawa (îles Fidji): Pêche, resorts et conservation de la nature dans un paradis touristique. *Revue d’ethnoécologie* 14.
- Nunn, Patrick. 2017. Sidelining God: Why secular climate projects in the Pacific Islands are failing’. *The Conversation*. <https://theconversation.com/sidelining-god-why-secular-climate-projects-in-the-pacific-islands-are-failing-77623>. Accessed 22 February 2019.
- Nunn, Patrick, et al. 2016. Spirituality and attitudes towards Nature in the Pacific Islands: Insights for enabling climate-change adaptation. *Climate Change* 136: 477-493.
- Pagezy Hélène, Stéphanie Carrière, and Catherine Sabinot (eds). 2010. *Nature du monde, dessins d’enfants*. Paris: Éditions CTHS.
- Pauwels, Simonne. 2015a. Sœurs et frères dans les îles Lau (Fidji): La relation entre village et ville. *Anthropologica* 57(2): 583-599.
- . 2015b. Chieftoms and chieftancies in Fiji. Yesterday and today. *Le Journal de la société des Océanistes* 141(2) : 188-198.
- . 2018. “Veiwekani, c’est bien plus que la politique”. Etre ou ne pas être chef dans l’île de Lakeba à Fidji. In *Médiations politiques en Mélanésie contemporaine*, ed. Laurent Dousset, Peter Lindenmann and Emilie Nolet, 63-90. Marseille : Pacific-Credo Publications.
- . In press (2019). Chiefs: Sense of belonging versus power and politics. *Anthropologica* 62.
- Poirier, Sylvie. 2008. Reflections on indigenous cosmopolitics-poetics. *Anthropologica* 50(1): 75-85.
- Ravuvu, Asesela. 1983. *Vaka i Taukei: The Fijian way of life*. Suva: University of the South Pacific (USP), Institute of Applied Sciences (IAS).
- Rohe, Janne R., Hugh Govan, Achim Schlüter, and Sebastian C.A. Ferse. 2019. A legal pluralism perspective on coastal fisheries governance in two Pacific Island countries. *Marine Policy* 100: 90-97.
- Roué, Marie. 2012. Histoire et épistémologie des savoirs locaux et autochtones: De la tradition à la mode. *Revue d’ethnoécologie* 1.
- Sloan, James, and Kevin Chand. 2016. An analysis of property rights in the Fijian *qoliqoli*. *Marine Policy* 72: 76-81.
- Smith-Vaniz, W.F., J.T. Williams, J. Brown, M. Curtis, and F. Pina Amargos. 2015. Sellar crumenophthalmus. *The IUCN Red List of Threatened Species 2015* (errata version

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published in 2017). <https://doi.org/10.2305/IUCN.UK.2015-4.RLTS.T190388A16510647.en>. Accessed 22 February 2019.

Sutton-Brown, Camille A. 2014. Photovoice: A methodological guide. *Photography and Culture* 7(2): 169-185.

Tawake, Alifereti, Sakiusa P. Fong, and Joeli Veitayaki. 2001. Summary report on the 2001 Vanuaso District Marine Resource Management and Monitoring Planning Workshop (Fijian Version). IAS Environmental Studies Report N°117. Suva: University of the South Pacific (USP), Institute of Applied Sciences (IAS).

Tomlinson, Matthew. 2009. *In God's image: The metaculture of Fijian Christianity*. Berkeley: University of California Press.

Turner, James W. 1992. Ritual, habitus, and hierarchy in Fiji. *Ethnology* 31(4): 291-302.

Tuwere, Iaitia. 2002. *Vanua: Towards a Fijian theology of place*. Suva, Auckland: University of the South Pacific (USP), Institute of Pacific Studies & College of St John the Evangelist.

Veitayaki, Joeli. 2002. Taking advantage of indigenous knowledge: The Fiji case. *International Social Science Journal* 54 (173): 395-402.

Veitayaki, Joeli, Alifereti Tawake, Alifereti Bogiva, Semisi Meo, Nacanieli Ravula, Ron Vave, Pio Radikedike, and Patrick Sakiusa Fong. 2007. Addressing human factors in fisheries development and regulatory processes in Fiji: The Mositi Vanuaso experience. *Ocean Yearbook* 21(1): 289-306.

Veitayaki, Joeli, Annette Breckwoldt, Tareguci Sigarua, Nanise Bulai, and Akosita Rokomate. 2014. *Living from the sea: Culture and marine conservation in Fiji*. Suva: iTaukei Trust Fund.

Veitayaki, Joeli, Esaroma Ledua, Akosita Nakoro, Hyun Pyo Hong, Deukhoon Peter Han, Sukran Moon, Annette Breckwoldt. 2018. Future use of past practices: Policy implications of insights from two community-based marine resource management initiatives in Fiji. *Ocean Yearbook* 32: 376-406.

Wang, Caroline, and Mary Ann Burris. 1997. Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior* 24(3): 369-387.

Wheeling, Kate. 2017. Combining tradition and modern science to survive climate change in the Pacific Islands. *Pacific Standard*. <https://psmag.com/environment/cop23-combining-tradition-and-modern-science-in-the-pacific-islands>. Accessed 22 February 2019.