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Abstract

Whilst there is an increasing literature about managing local Indigenous values in land based settings for visitor experiences there is limited knowledge around how Indigenous values contribute to tourism development in marine environments.

This paper explores how Indigenous knowledge and practices are integrated into scuba diving tourism development. In-depth face-to-face conversations with forty-seven Indigenous tourism stakeholders in Misool, Raja Ampat, Indonesia were conducted. Following narrative analysis, findings revealed five features of Misoolese knowledge and practices of the local communities: locating and attracting marine species, reading the signs of nature, respecting sacred sites, fish taboo, and *marine sasi*, a form of traditional marine resource management. The findings make a theoretical contribution as they explain how integrating Indigenous knowledge into successful tourism development can be achieved. It is argued these Indigenous practices are instrumental for culturally sustainable tourism development in marine environments.

Keywords: Indigenous knowledge; scuba diving tourism; marine ecotourism; Misool, Raja Ampat; cultural sustainability

Introduction

When tourism is developed in coastal areas where Indigenous people reside, development approaches that are respectful and inclusive of Indigenous peoples are crucial for long term sustainability (Mistry et al., 2016; Semali & Kincheloe, 1999; Smith, 2012). As Indigenous knowledge is often the only asset local people control (and central to their lives), development guided by Indigenous knowledge can be particularly

effective for Indigenous people (Gorjestani, 2000; Magni, 2017; Nuryanti, 2016; Smith, 2012). The importance of Indigenous knowledge in marine ecotourism development was first suggested by Orams (2002), Garrod and Wilson (2003) and Cater and Cater (2007), as it represents a holistic approach to marine resource management thus maintaining a sustainable relationship with the marine environment. As a sub-set of marine ecotourism, scuba diving tourism development also relies on a sustainable relationship between the local community and the surrounding marine environment.

Local communities in coastal areas have inherited Indigenous knowledge and practices over many generations regarding the management of their marine environment and wildlife (Durán, Farizo, & Vázquez, 2015; Hendry, 2014; Semali & Kincheloe, 1999). Such knowledge is attained through intergenerational understanding of special characteristics in their surroundings (Rupčić, 2018). Indigenous knowledge can be broadly defined as ‘the knowledge that an Indigenous community accumulates over generations of living in a particular environment. This definition encompasses all forms of knowledge – technologies, know-how skills, practices and beliefs – that enable the community to achieve stable livelihoods in their environment’ (United Nations Environment Programme, 2007, para. 1). Besides Indigenous knowledge, there are other terms used interchangeably in the context of Indigenous communities, such as: ‘local knowledge’, ‘folk knowledge’, and ‘traditional knowledge’ (Mistry, 2009, p. 371).

Despite local communities’ participation being underlined as one of the most important factors in scuba diving tourism development (Dimmock & Musa, 2015; Prasetyo, 2019; Prasetyo, Carr & Filep, 2019), the natural environment aspects are more likely to be studied by researchers and emphasised by the industry (J. C. Wilson & Garrod, 2003). Literature on scuba diving tourism shows an almost total absence of studies taking the perspective of Indigenous knowledge into account (Garrod &

Gössling, 2011; Musa & Dimmock, 2013). Only relatively recently has the framework of the scuba diving tourism system included the host community as a part of it (Dimmock & Musa, 2015). To contribute new insights as to how Indigenous knowledge from a local community can be implemented in a culturally sustainable manner, this article reports on the complexities of integrating Indigenous knowledge and practices within scuba diving tourism, drawing on fieldwork that took place on the island of Misool, Raja Ampat, Indonesia. Specifically, the paper aims to explore, through the Misool context, how Indigenous knowledge and practices could be integrated within scuba diving tourism development. To achieve this broad aim, the objective is to identify and discuss specific Indigenous practices that serve as useful approaches in achieving more culturally sustainable tourism development. In doing so, the paper provides a pathway to the integration of Indigenous knowledge and practices in the scuba diving tourism sector.

Literature review

Indigenous culture in marine ecotourism development

Indigenous peoples living in coastal areas believe that there is an inseparable connection between the ocean and the land, as well as the communal ownership over the land that spreads to the sea (Cater & Cater, 2007; Erdmann, 2014; Higgins-Desbiolles, 2008; Jennings, 2008). Indigenous communities' participation in marine ecotourism is essential to ensure support for touristic use of their marine environment (Cater & Cater, 2007; Higgins-Desbiolles, 2008; Jennings, 2008). Indigenous coastal management acknowledges the strong connection between Indigenous peoples, their marine environment, and their traditional management systems, in a manner compatible with the sustainability principles (Jennings, 2008). Policymakers, area managers, and marine

ecotourism developers are therefore recommended to include local Indigenous communities' insights in coastal management (Jennings, 2008).

When Indigenous access to traditional marine resources is not fully recognised, conflicts resulting from competing interests in marine ecotourism development may occur (Higgins-Desbiolles, 2008; Higham & Lück, 2007; Jennings, 2008; Lemelin, 2007). One example of marine ecotourism activity that causes such conflicts is whale-watching (Higgins-Desbiolles, 2008; Higham & Lück, 2007). Many animal protection and environmental groups oppose the practice of traditional whaling and some Indigenous businesses have responded by developing non-consumptive relationships with whale species, for example Whale Watch Kaikoura has long been seen as an exemplary, internationally renowned, whale-watching company (Orams, 2002; Curtin 2003; Zeppell 2007). On the other hand, traditional whaling is part of the Indigenous culture and traditions of some coastal Indigenous communities (Higgins-Desbiolles, 2008). For instance, the Makah Native American community in Washington, United States, view whaling as part of their identity and a Treaty right (Higgins-Desbiolles, 2008). Evans (2005) reported that the prohibition of traditional whaling in Tonga in the 1970s to support whale-watching tourism development had significant consequences for the health of individual Tongans. This was due to the loss of whale meat produced for domestic consumption by Indigenous Tongan whalers, which then caused nutritional deficits. These instances resulted in marine ecotourism ventures being perceived as 'a contemporary form of cultural imperialism' (Evans, 2005, p. 49) or 'eco-imperialism' (Higgins-Desbiolles, 2008, p. 229). To minimise conflicts around marine resource use, there clearly needs to be a comprehensive approach through collaborative management amongst all stakeholders (Jennings, 2008). The importance of Indigenous knowledge in marine ecotourism development is also supported by Zeppell (2007) and Lemelin (2007)

who encouraged more researchers to examine how the integration of Indigenous knowledge systems in marine ecotourism development can be accomplished. Other researchers argue that it is crucial to start underpinning marine ecotourism development with the cultural characteristics of the local communities who inhabit coastal areas because cultural sustainability is as important as natural sustainability (Cater & Cater, 2007; Palliser, 2015; Utami & Mardiana, 2018; Wilson & Garrod, 2003).

Academic literature presents numerous examples of Indigenous cultural influences in marine ecotourism development. There is however a notable lack of Indigenous perspectives within scuba diving tourism contexts, as can be seen in Table 1.

Insert Table 1 here

Local community participation in scuba diving tourism

Scuba diving tourism has turned into a niche sector of marine ecotourism with high revenue (Dimmock & Musa, 2015). Several issues and concerns regarding the development of scuba diving tourism have increasingly emerged in the past few years (Dimmock & Musa, 2015). The most discussed issues are environmental in nature, such as overuse of marine resources and social issues such as competition over beach space, stakeholders' complexities, and the lack of engagement with local communities (Cater, 2014; Dimmock & Musa, 2015; L. J. Wilson, 2014). A shift is needed in scuba diving tourism development towards a holistic approach that can benefit both the environment and the local community.

From an academic point of view, there has been limited focus on the involvement of local communities, particularly Indigenous communities, with regard to scuba diving tourism. Musa and Dimmock (2013) identified three main elements that framed the scuba diving tourism system: the environment, divers, and scuba diving

industry. This early conceptualisation did not include the local community as an element, and in the year 2015, Dimmock and Musa proposed a revised model for the scuba diving tourism system by including the host community as an element. In the case of Raja Ampat, many of the professional dive operators are foreign owned (King, 2017). King (2017) and Cater (2014) argued that the tendency for many scuba diving operations in developing countries to be owned by foreigners is another form of neo-colonialism. Thus, foreign dive operators are advised to prioritise the local community's interest and to make sure that they get the benefit of the scuba diving tourism development in their area (Cater, 2014).

It is crucial for the scuba diving industry to involve the local community and be aware of the issues that affect the destination, because both parties are sharing environmental resources (Jones & Shimlock, 2014). Each diving destination has its own unique characteristics, including local Indigenous communities whose relationship to their ocean surroundings can shape local identity (Jones & Shimlock, 2014; Krauskopf, 2014; Vos, 2006; L. J. Wilson, 2014). Moreover, the unique culture of the local community contributes to the total diving experience. As divers start to explore the cultural area of the community, the experience of learning about another culture contributing to the total diving experience and potentially the destination image (Jones & Shimlock, 2014; L. J. Wilson, 2014).

In a study conducted by Townsend (2011) on dive tourism and social responsibility in Wakatobi Dive Resort, Sulawesi, Indonesia, the owner realised that the local community, as the original stakeholder of the ocean surroundings, should be consulted from the early stages of development to safeguard the fragile marine environment. In consultation with the local leaders and village elders, the resort's owner established the Collaborative Reef Conservation Program, one spin-off being to raise

the local community's awareness of the value of the reefs in their area. In regard to the local Indigenous culture, the owner emphasised that local Indigenous beliefs about the sea and the dangers of swimming in it made it more difficult for the resort to train local people to become dive guides (Townsend, 2011).

Involving local communities goes beyond offering employment opportunities, for instance locals can be key advocates (Cater, 2014). Cater (2014) observed that local knowledge of the underwater environment led the local community in Kimbe Bay, Papua New Guinea, to establish locally managed marine areas where they set a no-take-zone area to sustain fish populations. This kind of practice is one means of formalising and preserving Indigenous knowledge by involving the local communities (Cater, 2014). As local communities are the key stakeholders and long term carers of their local ocean and coastal areas, scuba diving tourism operations need to facilitate wider local participation. Using Indigenous knowledge and practices in scuba diving tourism enables such activities, while maintaining local communities' culture, ways of life, and livelihood at the same time.

Study area

This article focuses on the local Indigenous communities in Misool, Raja Ampat, by exploring how they integrate their Indigenous knowledge and practices in scuba diving tourism. The Raja Ampat Islands are located on the westernmost point of Papua/New Guinea Island (West Papua Province, Indonesia). The natural and cultural features of Raja Ampat make it an ideal case study owing to a phenomenal variety of marine biodiversity (Gunawan, 2010; McKenna, Allen, & Suryadi, 2002) and thriving scuba diving tourism industry. Until the early 2000s Raja Ampat was still relatively unknown (Gunawan, 2010). It was not until 2010 that Lonely Planet Indonesia Travel Guide included Raja Ampat Islands as a sub-chapter, where it described Raja Ampat as

having ‘some of the best diving in the world. Little known until the last few years, Raja Ampat’s sheer numbers and diversity of marine life, and its huge, largely pristine coral-reef systems, are a scuba dream come true ...’ (Berkmoes et al., 2013, p. 452).

Information about popular dive sites, major dive resorts, homestays, and liveaboard¹ options were also included and this information contributed to the rise of tourism numbers to the destination, before the Covid-19 pandemic. Raja Ampat has numerous popular smaller islands, which tourists frequent for swimming, snorkelling and diving, one of which is Banos Island, as shown in Illustration 1.

Insert Illustration 1 here

Destructive fishing near such islands by outside fishermen has however been a problem for the local communities in Raja Ampat (Ambari, 2017; Erdmann, 2014). In the early 1980s, cyanide fishing commenced by fishers from outside Raja Ampat, and was a common practice by the mid-1980s (Varkey, Ainsworth, Pitcher, Goram, & Sumaila, 2010). As a result, the local Indigenous communities were concerned about their food security and wanted greater control over their resources (Erdmann, 2014). With subsequent scuba diving tourism development in Raja Ampat, some Indigenous communities were apprehensive about their food security and their traditional rights, especially their sea tenure. They needed a guarantee that they would still be able to access marine resources (Erdmann, 2014). Thus, it was imperative for dive operators and resort owners to reassure Indigenous communities that there would be benefits from scuba diving tourism development in the area.

Tourism in Misool gained momentum since 2008 with the first dive resort being opened in South Misool and continued with the opening of the first locally owned

¹ Liveaboard is a boat where scuba divers can stay on board for one or more nights to allow time to travel to more distant dive sites

homestay in 2011. Domestic and international visitors come to Misool for scuba diving, snorkelling, and sightseeing or island-hopping. Misool's population of 10,442 is spread over four sub-districts: Misool, South Misool, West Misool, and East Misool (Statistics Bureau of Raja Ampat District [SBRAD], 2017a). The Indigenous communities in Misool consist of *suku* Matbat (People of the Mountain), *suku* Matlou (People of the Sea), and *suku* Biga (which originally came from Waigeo Island).

Based on the Virtue of Decree of the Raja Ampat Regent No. 70 Year 2010, five villages in Misool were appointed as tourism villages: Yellu (population: 1,957), Harapan Jaya (population: 491), and Fafanlap (population: 943) in South Misool sub-district, Usaha Jaya (population: 724) and Tomolol (population: 1,348) in East Misool sub-district (SBRAD, 2017b; SBRAD, 2017c). The primary sector in both sub-districts is fisheries, as the local people's main income comes from employment at the pearl farm and from fishing and sea cucumber collection. Yellu is growing as the economic centre, Fafanlap as the cultural centre, and Harapan Jaya as the tourism centre because the first locally owned homestay in Misool was built there (Al-Anshori, 2014; SBRAD, 2014). Most of the local Indigenous communities in Yellu, Harapan Jaya, Fafanlap, and Usaha Jaya are ethnically identified as *suku* Matlou; and the people in Tomolol are *suku* Matbat.

Methodology

The fieldwork was conducted in five tourism villages in Misool, Raja Ampat, from August to November 2015. Informed by principles of Indigenous methodology there was a focus on 'relational accountability' (S. Wilson, 2001, p. 177) where cultural protocols, beliefs, and values became integral parts of the methodology (Smith, 2012) and the research methods and measures were tailored to the culture of the research

participants (Chilisa, 2012). Researcher reflexivity was taken into account, since this is common practice in Indigenous research (Chilisa, 2012) and more generally in qualitative research studies in tourism (Farkic, Filep & Taylor, 2020). All three authors of this paper were aware of the need for best practise with community relationship building vital for this research study. All three authors were familiar with and had been guided by Indigenous research ethics protocols (Smith, 2008) in this and prior research settings. This is crucial as Smith pointed out that the “abilities to enter pre-existing relationships; to build, maintain, and nurture relationships; and to strengthen connectivity are important research skills in the Indigenous arena” (2008, p.97). Although none of the authors are Misoleese, the first author is Indonesian. The first author, as the principal researcher in this project, spent significant time living and immersed in this Indigenous culture, working on tourism research projects with the Misoleese community. The second author has experience of working with host communities in various parts of Indonesia, and has previously published on the topic of sustainable tourism development, including dive tourism. The third author is an Indigenous woman and a scholar with many years of research experience working on similar projects with Indigenous communities across the Asia-Pacific region. Ethical consultation process was undertaken with an Indigenous research advisory committee at the authors’ institution alongside formal ethics approval which had to be obtained by the relevant university to which the authors were affiliated prior to the field work and data collection.

Method and data collection processes

Primary data collection was conducted using a conversational interview method (Kovach, 2010; S. Wilson, 2001). The conversational interview method is ‘a means of gathering knowledge found within Indigenous research, based on oral story telling

traditions congruent with the Indigenous paradigm' (Kovach, 2010, p. 40). The conversational interview method praises oral tradition as a way of conveying knowledge and supporting collective traditions (Kovach, 2010). It refers to an interpersonal process that is associated with specific procedure consistent with Indigenous knowledge identified as guiding the research (Thompson & Kovach, as cited in Kovach, 2010). This approach complements Indigenous epistemology as a relationship is built through an alternative style of interviewing that allows deviations from the norms of standardized interviewing, differentiating the conversational interview method from standard interviews based on pre-set questions (S. Wilson, 2001). During the fieldwork, participants were recruited using the snowball method of recommendations; forty-seven interview conversations were undertaken with local Indigenous people who worked in the tourism sector: Misool's Marine Protected Area (MPA) field office, tourism operators, traditional leaders, government officials, and NGOs (see Table 2).

Insert Table 2 here

In line with snowball sampling, as a non-probability sampling technique, a small group of close contacts of the first author from NGOs in Raja Ampat were initially contacted who then selected other research participants. The conversational interviews were conducted until a saturation point had been reached, that is, until repetitions in responses were identified (Fusch & Ness, 2015). To preserve anonymity, pseudonyms were used for all the participants. Researchers were obliged to inform the participants about the aims and scope of the research study and that they could withdraw their participation at any time and for any reason. This information was included on an information sheet and a consent form, but was also verbally communicated to the participants. The ethics forms were translated to the official Indonesian language

(Bahasa Indonesia) by the first author. All data collection was conducted in this language, recognising the fact that the first author is a native Indonesian speaker and that the research participants spoke Indonesian fluently.

Data analysis

The recorded conversational interviews enabled dialogues with participants regarding their Indigenous knowledge and practices, and how they integrated knowledge and practices into scuba diving tourism development. All forty-seven conversational interviews involved the use of a voice recorder. But some additional informal conversations also occurred with the research participants and these were not recorded – they simply involved note taking as the conversations unfolded. Transcripts of almost seventy hours of interviews were generated, then translated into English. Naturalised transcription was also used in the transcribing process to record non-verbal signals that affected the tone of conversations and their meanings (Oliver, Serovich, & Mason, 2005). Non-verbal responses such as laughter, pauses, and the use of expressions like ‘mmm’, ‘well...’ were all taken into account (Oliver et al., 2005).

Narrative analysis was utilised to analyse the transcriptions, including close readings of stories told by participants during the conversational interviews (Bamberg, 2012; Kovach, 2009; Slembrouck, 2015; S. Wilson, 2008). Narrative analysis allowed interpretations of how the participants embraced their Indigenous culture and how those interpretations were intertwined with scuba diving tourism development in the area. After all the transcripts were read and re-read, all *Misoolese* Indigenous knowledge and practices mentioned by the research participants were identified. In the final stage of data analysis, themes specific to Indigenous knowledge and practices that were specifically related to scuba diving tourism were identified.

Findings and discussion

To explore how Indigenous knowledge and practices could be integrated within scuba diving tourism development, five themes of *Misoolese* Indigenous knowledge and practices were identified from the data. These themes were :1) locating and attracting marine species; 2) reading the signs of nature; 3) respecting sacred sites; 4) fish taboo; and 5) marine *sasi*. The findings, which were subsequently shared and member-checked with the research participants, represent key aspects of the Indigenous knowledge and practices based on the narrative analysis. All five themes centre upon a strong connection between the *Misoolese* people and nature. The themes refer to both physical and social practices (e.g. locating and attracting marine species) and more spiritual practices (e.g. fish taboo). Overall, the five themes represent a strong connection with the sea, which is central to the identity of the *Matlou* (People of the Sea) but also significant to the non-coastal *Matbat* (People of the Mountain). The interactions between the *Misoolese* people and their marine environment were manifested in attributes that represent their unique ways of understanding their world. Statements such as ‘the sea is our lives’, ‘the sea is our livelihood’, ‘the sea is our home’, and ‘our lives depend on the sea since our ancestors’ time’ were often mentioned during the conversations. One participant commented: ‘to me the sea is not only the sea ... it is like my mother. It gave birth to me, it raised me, and it feeds me’ (Riki, local patrol ranger). The personification of the ocean in his statements, by using the words ‘*giving birth*’, ‘*raise*’, and ‘*feed*’, demonstrates how he believes that the sea has been taking care of him like a mother. Overall, the attributes of *Misoolese* Indigenous knowledge and practices reflect who they are as *Misoolese* and confirm their inseparable connection with the natural world (Berkes, 2012). As scuba diving has become the key marine ecotourism activity in Misool, the field work findings reveal that the *Misoolese* people

who work in dive resorts have naturally been integrating their Indigenous knowledge and practices into their scuba diving activities. The five key findings themes are further explained and discussed in the following sections.

Locating and attracting marine species

One Indigenous type of knowledge that arose from the *Misoolese*'s strong connection to nature is the ability to locate and attract certain species of fish: dolphins, manta rays, and sharks. Some of the Indigenous research participants knew exactly where to find certain kinds of fish because they have been practising *molo*, an Indigenous practice of free diving (using the traditional goggles made from wood and glass) to collect sea resources during harvesting times. As one participant stated: 'I know that near that peninsula there are napoleon, pygmy, wobbegong [sharks] because we used to *molo* there' (Alam, local dive guide). Another dive guide used the knowledge of underwater sites he got from *molo* to locate potential new dive sites. As he put it: 'I know a lot of spots that I think have potential to be new dive sites. For now, I keep them to myself; I will only take my guests there' (Hadi, local dive guide). From his statement, there is a feel of exclusivity by taking only his personal guests to those new dive sites.

The Indigenous knowledge of locating and attracting marine species is a result of having unique ties and connections to ancestral territories, enabling detailed knowledge of their native flora and fauna, necessary for them to survive and maintain the harmony with their natural environment (Berkes, 2012; Grim, 2001; Hendry, 2014; Hinch & Butler, 2007). Knowledge of how to locate specific fish is useful in scuba diving tourism development as it potentially leads to the discovery of new or specialised dive sites, which could be an advantage to Indigenous dive guides.

The ability to find certain kinds of fish is coupled by the ability to call some of them, such as calling the sharks. One participant explained how his parents taught him to call the sharks:

Here, our elders used to do what we call *goyang tempurung* [shake the coconut shells] to bring in sharks, ... Shake [the coconut shells] from the edge of the boat, sharks will come near us. We arrange the shells, dried coconut shells, using a small rope. ... at the bottom of the rope we use a weight, like a heavy bottom tin, then we drop the rope with the shells in [to the water], then we shake it.. krrkkk..., krrkkk..., krrkkk.. The sharks [that came], wow, they're big! Small, big, everything. It's like that from generation to generation, since our ancestors. (Hendra, local dive guide)

Hendra now uses those techniques for scuba diving:

[Now] we use it for scuba diving. ... [instead of using coconut shells] we use an empty water bottle, we fill it with water until full. Once we are at the bottom, point the regulator into the bottle to empty the water, then close it immediately. Then make a sound [using two hands, start crackling the bottle] krrkkk..., krrkkk..., krrkkk..., the sharks will come. When they come we just stay still, don't move a lot. That's a technique, but we have to be agile and to have sharp eyes. (Hendra, local dive guide)

The different natural settings where Indigenous people live created their own understandings about their relationships with their environments (Berkes, 2012). The strong connection between Indigenous peoples and nature resulted from a long history of interaction with their natural surroundings and of relationships with all living beings. These living beings include animals who also occupy their natural setting, which in this case, is the marine environment. The above detailed accounts on how that connection with animals translates into a way of calling them demonstrates the strong connection between the *Misoolese* people and their natural surroundings.

Reading the signs of nature

Another aspect of the *Misoolese* Indigenous knowledge and practices is the ability to read the signs of nature or *baca alam* by using natural elements for navigation and weather forecasting. The sea has become a big part of the daily lives of the *Misoolese* people. All Indigenous participants instinctively use the knowledge of *baca alam* (reading nature) when they navigate the sea using the sun, the stars, and their own instincts, through traditional methods:

For example, if the weather condition is foggy, our destination becomes an island that we can vaguely see. Because we can't see the island clearly, we can only read the surroundings: what type of wind is blowing, and what waves there are, and what current there is. ... When we travel far, we use the Sun in daytime; we use the stars at night-time. On cloudy nights, we use the position of the waves and the currents. (Mirwan, local skipper)

Another participant explained how he reads the currents to determine which directions should be taken and how he reads the clouds to know when a gale is coming. He also explained that the ability to read the signs of nature was used by his elders who taught him how to forecast the weather:

My parents taught me, when it's south season like now, when we see the 'seven-stars', that means the wind is going to end, which means south season will change to west season soon. Later when the south season is going to return, the seven stars will show up again in the west facing south. (Mahmudi, local dive resort employee)

Prior studies have noted the use of natural phenomena for Indigenous navigation (Genz, 2014; Richey, 1974; Varadarajan, 1980). Reading nature is an Indigenous practice that accumulates over generations in a particular marine environment (Hendry, 2014; Semali & Kincheloe, 1999). Indigenous knowledge about the skies and the ocean currents for navigating the sea, is often passed on from one generation to the next. It is quite common for Indigenous oceangoers to navigate using the Sun, the stars, the clouds, and analysing the motions and sounds of the waves and currents (Hendry,

2014). As the sea is an integral part of their lives, there is a corresponding need to have the ability to ‘read’ the nature amongst Indigenous people who live in coastal areas. In Misool, the ability to read the signs of nature is used not only to navigate the sea, but also to forecast the weather and the *Misoolese* people who work in dive centres or resorts have naturally been using the ability to read these signs of nature to choose dive sites:

Our elders said when it’s new moon, the current is strong. When it’s full moon, [the current is strong] too, because the water drop is very strong. So that [knowledge is] what we have been using for diving. If we see a new moon or full moon, [that means] the current is a bit strong, so we can choose dive sites that are safer for scuba divers, especially for older ones. (Doni, local dive guide)

For diving, I read the current to determine the best sites to go to. When there’s current, that means lots of planktons, which means lots of fish. But the current on the surface is not always the same as the current below. So, we must check it first. When the tide becomes calmer, it means underwater current is already calm. But it still depends on the wind. (Jojo, local skipper)

Now we can use it [the seven-stars system] as a sign for diving trips, [to tell] when the time is good to go out to remote sites” (Mahmudi, local dive resort employee).

Although most dive operators’ boats are equipped with modern technology for navigation, *Misoolese* skippers and dive guides still utilise their instincts and traditional knowledge of nature in navigation and in choosing which dive sites to go to.

Respecting sacred sites

For the *Misoolese* people, as with many Indigenous peoples, some places are sacred. For the interviewees, this sacredness was related to the spirits that are believed to occupy those places. There are two types of sacred sites: the ones that are totally prohibited to visit and other ones which are sacred but still can be visited. The latter

usually requires visitors to perform some Indigenous protocols as a symbol of paying respect to the spirits. A local dive guide explained the importance of asking permission from the spirits before scuba diving:

My parents and elders reminded me that [when scuba diving] I will go down to another world that is not the human world, so I have to respect that. ... So before I decided to become a dive guide, I had already learned those things and asked my parents. Because this [under the sea] is a different world, this is not my world, this is the fish world, which can give me livelihood. So I have to think about the spirits that take care of that world. That is my guideline. ... In the ancient days, what our elders did was to throw coins into the sea. It's a symbol of sharing what you get with the spirits of the underwater world. ... [Doing] that is for safety, so that the underwater spirits will keep them safe. So now, I also do the same. When I take my scuba diver guests to places that my parents said are sacred, ... I always bring coins with me. Just before we get out of the boat, I give each guest a coin and ask them to 'talk' to the spirits through the coin with their own beliefs, and then throw them into the sea. The key is to speak [to the spirits]. We pray for our safety. Before we start diving, I always speak to them [the spirits]: "these [coins] are a part of my income that I share with you. Please do not harm my guests. They are good people, they came here just to see. Hopefully in the future they will bring more people to visit". Every guest that I took scuba diving with me never had any accident, they became more curious, in fact they all said they wanted to come back. (Nurholis, local dive guide)

The way the local dive guide incorporates the Indigenous practice of throwing coins into the sea before diving demonstrates his way of maintaining a relationship between him and his natural and spiritual environment. Garrod and Wilson (2003) acknowledge the vital importance of integrating Indigenous knowledge in marine ecotourism to maintain a harmonious relationship between the local communities and their marine environment, including both natural and spiritual aspects. Maintaining a harmonious relationship with the spirits is viewed as a holistic approach in marine ecotourism development in an area where Indigenous people live (Cater & Cater, 2007). As Nurholis stated, the scuba divers who came to Misool became 'more curious' when

they were asked to follow the procedure, hence they ‘wanted to come back’. This finding suggests that incorporating Indigenous knowledge and practices in scuba diving tourism can create a different experience for scuba divers, possibly generating a positive brand image for the place as a unique diving destination (Jones & Shimlock, 2014; Krauskopf, 2014; L. J. Wilson, 2014). The unique experiences of witnessing the *Misoolese* people connect to their identity through the practice of their Indigenous knowledge that the visiting scuba divers had in Misool, increased the tourists’ desire to return to that place. Townsend (2011) found that the local Indigenous beliefs about the sea, and the dangers of swimming in it, made it more difficult to train local Indigenous people to become dive guides. However, these research findings show that there are certain Indigenous protocols in Misool that could be utilised to overcome fearful Indigenous beliefs about the sea, provided that the spirits of the sea are respected. This enables the involvement of the local Indigenous communities in scuba diving tourism and generates tourists’ interest.

Furthermore, utilising Indigenous knowledge and practices for tourism development offers a means for Indigenous individuals and communities to rediscover their sense of pride in their Indigenous heritage and to regain their self-esteem and identity (Carr, 2007; Smith & Richard, 2013). Nevertheless, not every time do the *Misoolese* people feel comfortable in applying their traditions to tourism. When Nurholis was asked whether he followed the same procedures as foreign scuba divers, he said: ‘No. Because they don’t believe in these kinds of things’. He understands the differences between Western worldviews and Indigenous worldviews and this prevents him from following his Indigenous traditions. Some Indigenous dive guides may be reluctant to share their beliefs with foreign scuba divers because the latter group might not comprehend the significance of what is occurring and could possibly, in some

situations, jeopardise the continuity of practising certain Indigenous traditions. Thus, instead of preserving Indigenous knowledge and practices, scuba diving tourism development might actually discontinue them. This illustrates the complexities of integrating Indigenous knowledge and practices in scuba diving tourism, which predominantly attracts and involves Westerners.

Fish taboo

The strong connection between the *Misoolese* people with the fish that occupy the same marine environment is also demonstrated in their belief of fish taboo – the fourth theme identified in the research findings. Taboo is an Indigenous belief system that has been practised by Indigenous peoples elsewhere in the world, for example the Ningo people in Ghana with the taboo of killing or capturing turtles (Ntiamoa-Baidu, 2008), the Tagbanuwa in the Philippines with the taboo of swiddening² their sacred groves (Olofson, 1995), and the Makushi and Wapishana in Guyana with the taboo of consuming certain meat (Luzar, Silvius, & Fragoso, 2012).

Fish taboo, in the case of the *Misoolese* people, is an Indigenous practice where each clan has its own taboo on one or more species of fish/shellfish which are then prohibited in terms of consumption. Some of the fish/shellfish that are tabooed by the *Misoolese* people are: grouper, shark, barracuda, marlin and lobster. Depending on their clans, some people may have more than one fish taboo. For some *Misoolese* people, the taboo is not just for eating the fish/shellfish, but also touching it and seeing it being killed. Most of the Indigenous research participants conveyed similar stories on the history of fish taboo: that a particular fish or shellfish once helped their ancestors when they were having problems (such as almost drowning) in the sea, and in return, their

² temporary cultivation by cutting and burning vegetation

ancestors made a promise to the fish/shellfish that all of their descendants would not eat that fish/shellfish. Therefore, a fish taboo is a promise made by their ancestors to one or more fish/shellfish, and the belief is there will be consequences when someone tries to eat his/her tabooed fish/shellfish. They believe they will become sick with skin diseases and toothache/oral problems.

A local dive guide alluded to the notion of how his Indigenous belief of fish taboo affects his job as a dive guide:

In here, all other dive guides know that my fish [shellfish] taboo is lobster and when I'm guiding I can't see it and I am afraid of lobsters. So, when I see a lobster and my guests want to take photos, I point the lobsters from far away, like two-three meters away, using my underwater flashlight. So, my guests go near to the lobster, and I go away as fast as I can and find other animals, hahaha... So, I don't want to take any risks. I mean..., it's our tradition and we believe in our ancestors. Mine said lobster is taboo. (Doni, local dive guide)

Fortunately, in scuba diving, one of the important rules is that scuba divers are not usually allowed to touch anything underwater (Macdonald, 2014). Doni's limitation on having close contact with lobsters enables him to show respect to both his Indigenous beliefs and the marine life.

Marine sasi

The most significant traditional practice of the Indigenous communities in Misool was a form of traditional marine resource management, referred to as marine *sasi* – the last of the findings themes (McLeod, Szuster, & Salm, 2009; Steenbergen, 2013). *Sasi* is practised in most eastern parts of Indonesia, which is a 'traditional system of natural management and includes prohibitions on resource harvest on land and in the sea' (McLeod et al., 2009, p. 657). Marine *sasi* refers to a traditional marine resource management where the local community closes a certain area of the sea, according to a

decision made by traditional leaders and religious leaders through a meeting, for certain kinds of fisheries over a period of time (The Nature Conservancy, 2014). The marine species resources that are being *sasi*-ed in Misool include: sea cucumber, trochus, turban shell, and nowadays lobster, often because of their economic value in the fisheries sector.

An Indigenous ranger, whose job is to protect the no-take-zone area surrounding a dive resort in Misool, truly believes that the Indigenous practice of marine *sasi* is beneficial for scuba diving tourism:

Marine *sasi* was created to protect everything around us for a couple of years or for a certain amount of time. That gives the chance for all kinds of marine ecosystem to grow, right? The fish are given the time to lay eggs, and so on. I think its benefit is huge for tourism. Because marine *sasi* and tourism have the same objectives. Especially for scuba diving tourism, if there are no fish left, no other marine ecosystems either, who would want to dive here? ... So I think the existence of marine *sasi* is really important. It needs to be maintained forever.
(Riki, local patrol ranger)

His comments link marine *sasi* to scuba diving tourism development in a positive outcome as marine biota can grow and reproduce. He also commented that marine *sasi* needs to be continued so that the next generations will be able to see the existing marine biota in the future.

Another Indigenous dive guide provided an alternative opinion on how marine *sasi* could affect scuba diving tourism:

Marine *sasi* used to be more sacred. I have to respect it because it's the people's decision and I respect the norms that my elders made. Before NGOs, before tourism, our elders already made marine *sasi* areas. They already managed it for a long time. So we have to respect marine *sasi*. I think when it is time for marine *sasi* to close, all diving activities must be stopped, even though the sites are far from the *sasi* area. Because customary marine *sasi* is the communities' *sasi*, which means all areas in Misool cannot do any activities related to *molo* like diving. This is just an example on how I think marine *sasi* can affect tourism.

Because in the old days, no one can *molo* during marine *sasi* closures. When it opens, then we can dive again. That's how our elders managed marine *sasi*. We have to respect that. But this requires care, if we want to make marine *sasi* like it used to be. (Nurholis, local dive guide)

Some traditional leaders conveyed their concerns around the lack of sacredness in current marine *sasi* practices because fewer traditional rules are applied. The above comments confirm that concern. For example, Nurholis' opinion about how acknowledging elders' wishes might impact directly his income as a dive guide and his livelihood:

Yeah well..., but marine *sasi* is our tradition, which has been decided by the traditional leaders, religious leaders, youth leaders, all communities. Maybe I can find other things to do to support my life during the south season [when marine *sasi* closure usually happens]. This is to respect *sasi*. Tourists are varied. Maybe we can take them to the forests, or sightseeing, island-hopping. (Nurholis, local dive guide)

Such insights clarify how Indigenous knowledge could both enhance but also impede the development of scuba diving tourism, therefore creating the need to consider other opportunities that are land based when the need to respect Indigenous values limits product development.

In summary, the research findings have illustrated how *Misoolese* Indigenous knowledge and practices of locating and attracting marine species, reading the signs of nature, respecting sacred sites, fish taboo, and marine *sasi* have been integrated in scuba diving tourism. This is summarised in Figure 1.

Insert Figure 1 here

Locating and attracting marine species are activities that can be incorporated into new or specialised dive site experiences, assisting with operations in determining the best time and place to see certain marine species, for instance providing a shark-encounter

experience. Reading the signs of nature is another form of Indigenous knowledge used for choosing dive sites to go to and forecast the weather before scuba diving trips, whilst practising traditions that respect sacred sites is demonstrated in certain protocols that are enacted before scuba diving. In terms of the complex issues associated with Indigenous knowledge, some aspects of fish taboo could be a limitation for Indigenous dive guides. With marine *sasi*, the marine biota will be preserved through a lack of human interactions during a *sasi* period. Even though marine *sasi* may limit scuba diving tourism, it could also lead to healthy ecosystems and species diversification whilst encouraging locals to consider developing other marine activities besides scuba diving during *sasi*.

The findings, however, also suggest that there are complexities within cultural contexts when integrating Indigenous knowledge and practices in scuba diving tourism. For the *Misoolese* people, the holistic understanding of their surroundings consists of not only the physical, but also the spiritual elements of the place. This also shaped their beliefs in paying respects to the spirits as they believe it is a part of living in harmony with their natural and spiritual environment (Grim, 2001). When some of the *Misoolese* participants compared their Indigenous worldview with Western worldviews, several were aware that the traditional way of ‘living in harmony with the spirits’ might change and some practices might be modified or even stopped, depending on what aspects were suitable for a tourist audience. Nevertheless, the Indigenous knowledge and the practices are dynamic, and they evolve with the way of thinking of these Indigenous people who own them.

Conclusion

Based on an in-depth qualitative study with Indigenous tourism stakeholders in Misool, Raja Ampat, the paper identified and examined how culturally sustainable elements

could contribute to the development of diving tourism in the area. Interview findings identified five Indigenous practices that could influence, and similarly be influenced by, diving tourism: locating and attracting marine species (e.g. the practice of free diving using traditional goggles), reading the signs of nature (e.g. for navigation and weather forecasting), respecting sacred sites (especially the spirits that occupy those sites); fish taboo (the practice of respecting and not touching certain types of fish when diving); and the practice of marine *sasi* (a form of traditional marine resource management). The findings provided a pathway to the integration of the Indigenous knowledge and practices in the scuba diving tourism sector.

The findings from research participants indicate that the integration of the *Misoolese* Indigenous knowledge and practices in marine ecotourism development is of vital importance to maintain a sustainable relationship with the natural and spiritual environment of the local communities in which the activities take place (Cater & Cater, 2007; Garrod & Wilson, 2003). No previous scuba diving tourism studies have specifically investigated the integration of Indigenous knowledge and practices into scuba diving activities and development.

As the primary stakeholder in scuba diving tourism development, local Indigenous communities need to be treated as equals when developing future marine experiences that enable continual resilient relationships between developers and local peoples. As marine operators access culturally significant marine areas for scuba diving tourism, negotiating parameters around business routines and consulting with local communities is potentially one of the best practice approaches when starting a scuba diving operation. Respect needs to be shown to such communities to gain their trust for future cooperation around scuba diving tourism development (Jones & Shimlock, 2014). This of course would entail involving the local Indigenous communities in all

key stages of the planning and development processes so that future scuba diving tourism development will generate positive environmental and socio-cultural impacts. As such, the management strategy should not just be based on conservation and sustainable use of natural resources, but be guided by the Indigenous knowledge, culture, history, and aspirations of the local people.

Broadly, the paper revealed how Indigenous knowledge and practices of host communities could affect and be integrated in effective tourism management. Previous scuba diving tourism studies have focussed on how to develop environmentally sustainable scuba diving tourism (Garrod & Gössling, 2011; Musa & Dimmock, 2013). Using Indigenous knowledge and practices in scuba diving tourism development not only acts to maintain the holistic relationship between the Indigenous people and their marine environment (Cater & Cater, 2007; Garrod & Wilson, 2003), but also strengthens the identity and the uniqueness of scuba diving tourism destinations (Jones & Shimlock, 2014; Krauskopf, 2014; Vos, 2006; L. J. Wilson, 2014). By acknowledging the importance of incorporating Indigenous knowledge, and to counter what has been perceived as ‘the colonisers’ new industry’ (King, 2017, p. 13), the scuba diving industry should instead contribute to safeguarding Indigenous cultural traditions, ensuring not just environmental sustainability, but also culturally sustainable tourism development.

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Table 1. Indigenous Cultural Influences in Marine Ecotourism

Location	Types of Indigenous Cultural Experiences	Approaches to Tourism
Kaikoura, New Zealand	Ancestral legends about marine species Indigenous marine environment stewardship	Indigenous ownership of whale-watching operations Indigenous interpretation from Indigenous guides Cultural consultation with marine concessionaires
Couran Cove, Queensland, Australia	Indigenous practices of Aboriginal use of marine resources, such as the use of dolphins to herd sea mullet into the net Indigenous myths and legends	Aboriginal Heritage and Environment Centre Indigenous interpretation/Bush walk Performance of Aboriginal dance and music
Western Australia, the Northern Territory, Queensland – Australia	Indigenous cultural sites offshore Interpreting connection between Indigenous people and their marine areas Indigenous peoples' identity as "salt water people" or "white sand beach people"	Interpretive centres The use of Indigenous guides
Stanley Island, North-eastern coast of Australia	Indigenous marine environment stewardship	Indigenous guides convey their care of place by interpreting traditional relationship with their marine culture and environment
West Timor, East Nusa Tenggara Province, Indonesia	Bajo Indigenous practices and beliefs that prohibit catching and killing whale sharks	Community-based monitoring to support whale shark-watching tourism initiatives
Barrow, Alaska, USA	Indigenous maritime values such as respect for marine nature and whale hunting traditions	Iñupiaq maritime values adopted in Arctic marine-based tourism 'The People of Whaling' exhibition in the Iñupiat Heritage Centre Museum

Source: Adapted from Cater and Cater (2007), Curtin (2003), Hillmer-Pegram (2016), Mylne (2003), Stacey, Karam, Meekan, Pickering, and Ninf (2012), Walker and Moscardo (2016)

Table 2. Research Participants

Participants	Place of Interview	Total Number	Gender, Age Range	Notes
Indigenous people who work in the tourism sector	Yellu, Harapan Jaya, Fafanlap	15	14 male & 1 female, 20-70	
Indigenous people who work at Misool MPA Field Office	Yellu, Harapan Jaya, Fafanlap, Usaha Jaya, Tomolol	7	6 male & 1 female, 30-40	
Tourism operators	Yellu, Harapan Jaya, Fafanlap	7	6 male & 1 female, 30-60	Two non- <i>Misoolese</i>
Heads of villages	Yellu, Harapan Jaya, Fafanlap, Usaha Jaya, Tomolol	5	All male, 30-80	
Traditional leaders/elders	Yellu, Fafanlap, Usaha Jaya, Tomolol, Folley	6	All male, 60-90	
Government officials	Dabatan, Folley, Waisai, Sorong	5	All male, 30-50	Four non- <i>Misoolese</i>
NGOs	Sorong	4	All male, 40-60	Three non- <i>Misoolese</i>

Illustration 1- Banos Island – photograph taken by the first author

