



## Tracking SCUBA Diving Adventure Tourism in South Africa

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**Abstract.** The aim of this study is to investigate some of the trends associated with SCUBA diving within an adventure tourism framework. Previous research has shown the increase in adventure tourism, globally, as well as its economic contribution to national economies, particularly those in developing countries such as South Africa. As one of the oldest forms of adventure tourism, SCUBA diving, in particular, has the potential to generate significant income due to the training requirements, the specialized equipment required and the trend of career participation in the activity. This study analyzed the SCUBA industry in South Africa through 106 questionnaires distributed to SCUBA divers. The results show that there is a trend of repeat participation in SCUBA dive tourism and the economic implications are significant. Furthermore, it demonstrates evidence of the development of SCUBA communities in the country, encouraging continued participation. The results have important implications for the potential contribution of SCUBA diving to the South African adventure tourism industry. It also highlighted some of the aspects that could either attract or deter more people from engaging in SCUBA diving in South Africa, which has product development and marketing implications. This work brings initial insight into an important tourism subsector which generates significant income and has a strong potential for further development in South Africa.

**Keywords:** scuba diving; adventure tourism; South Africa; tourism economics

**JEL Classification:** Z30 Z32 Z38

### 1. Introduction

In recent years, there has been a transformation in the adventure tourism and recreation sectors. Previously small and specialized, more people are now seeking thrilling experiences and unique interactions with nature. (Bell & Lyall, 2002; Buckley, 2010) This growth has been seen industry-wide with increases in the number of people engaging in what is considered both “hard” and “soft” adventure tourism. (Beedie & Hudson, 2003; Pomfret & Bramwell, 2016) In addition, the potential social value provided by many adventure activities has resulted in the expansion of communities associated with specific types of adventure recreation. (Puchan, 2004)

These changes have also been apparent within the SCUBA diving industry. SCUBA, which stands for Self-Contained Underwater Breathing Apparatus refers to the technology that allows human beings to dive deep underwater by providing a breathing mechanism using portable oxygen tanks. SCUBA diving is one of the oldest and most well-known subsectors of adventure tourism. (Lemke & Olech, 2011) Although early SCUBA diving was used, largely, for military purposes and scientific exploration, human fascination with the deep sea has meant the use of SCUBA for recreation has long been popular. (Dimmock & Cummins, 2013) The growth in SCUBA tourism in recent years is related, not only to the broad growth in adventure tourism globally, but also the advances in SCUBA technology as well as the increasing affordability of SCUBA equipment. (Davis & Tisdell, 1995) This

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has allowed the spread of SCUBA diving operators throughout the globe, particularly in developing countries. (Lew, 2013) Indeed, in many developing countries dive tourism is a major element of tourism economies and of critical importance for many coastal communities. (Daldeniz & Hampton, 2013; Garrod & Gossling, 2008; Tibirica, Birtles, Valentine & Miller, 2011) SCUBA diving is a vital element of the rise and expansion of an international economy of “marine tourism” which is attracting a growing and vibrant scholarship. (Biggs et al., 2015; Dwyer, 2017; 2018; Garrod & Gossling, 2008; Miller, 1993; Papageorgiou, 2016)

In South Africa, adventure tourism has grown rapidly since the end of apartheid in 1994. (McKay, 2016) It is often seen as a useful development strategy, particularly in rural and peri-urban communities throughout the country. (Mograbi & Rogerson, 2007; Rogerson, 2007) This is because of the availability of a plethora of natural resources which can facilitate adventure tourism, as well as the unique aesthetics of these landscapes. (Giddy & Webb, 2016b) SCUBA diving has been prevalent in South Africa for many years. (Lucrezi et al., 2013a) The tropical water, particularly along the northeast coast of South Africa, provides attractive dive sites due to its marine biodiversity. In addition, the prevalence of great white sharks, and other large marine predators throughout South Africa creates unique and desirable diving experiences. (Geldenhuys et al., 2014) However, very little research has explored the trends of dive tourism in South Africa, particularly in relation to broad characteristics of divers as well as the economic contribution of diving to the South African tourism industry. This study, therefore, seeks to provide a broad overview of some of the dynamics of SCUBA diving, in South Africa, by analysing the perceptions and experiences of the South African dive community as well as their expenditures on dive tourism. The importance of this investigation is underscored by the growing policy interest in South Africa around the promotion of coastal and marine tourism as a whole. (Department of Tourism, 2018)

**2. Literature Review**

**2.1. Adventure Tourism**

There has been a debate, particularly in recent years, concerning what exactly constitutes adventure tourism. (Swarbrooke et al., 2003) The element of risk is consistent throughout definitions, albeit there is division among scholars as to whether or not risk has to be real or activities which induce feeling of thrill or fear (i.e. perceived risk) can be considered adventure tourism. (Cater, 2006) Some scholars argue that any activity within a tourism framework in which risk or fear is involved, can be considered adventure tourism. Based on this conceptualization activities such as cycling, walking through dangerous neighbourhoods, or overland journeys can fall within the definition of adventure tourism. (Swarbrooke et al., 2003; Weber, 2001) Others argue that only activities in which real risk and danger is involved can be considered “true” or “original” adventure. (Kane & Tucker, 2004; Varley, 2006) Varley (2006) asserts that the vast majority of activities which are labelled as “adventure tourism” involve what he deems “post-adventure.” This refers to experiences which are thrilling, in some sense, to the individual, but which are actually highly manufactured, relatively safe, and where the locus of control is on an external party (typically an adventure guide) (Beedie, 2001; Holyfield, 1999; Varley, 2006). However, for the purposes of this study, adventure tourism is defined as tourism activities which typically occur outdoors and involve some kind of risk (Hall, 1992)

The standard division within adventure tourism is the classification of activities as either “hard” or “soft” adventure. (Beedie & Hudson, 2003; Swarbrooke et al., 2003) The primary distinction, which is

often made between these categories, is the level of risk associated with specific activities as well as the skills required to complete the activities. Those seeking hard adventure will select activities and destinations which they believe will provide more of a challenge and relatively high levels of risk. (Cater, 2006) Although some of the soft adventure activities may appear adventurous to certain individuals, they typically do not require the same skills or provide the same challenges and level of risk as those deemed hard adventure. (Adventure Travel Society, 2000) In addition, some broad categories of activities (e.g. hiking) could include specific activities that are considered soft and hard adventure.

Discussions of the role of risk and perceptions of risk among participants have been at the centre of adventure tourism research for decades. (Buckley, 2012; Cater, 2006; Ewert & Hollenhorst, 1989; Robinson, 1992) Risk is a defining component of adventure tourism across the range of definitions. (Buckley, 2006) However, the role of risk in adventure tourism, particularly in recent years with increasing commercialization, has been at the centre of many discussions surrounding the concept. As discussed in the case of what constitutes “true” adventure, the notion of real versus perceived risk emerges. (Beedie, 2001; Varley, 2006) As mentioned above, most researchers have concluded that risk can either be real or perceived in the case of adventure tourism. (Carnicelli-Filho et al., 2010; Cater, 2006; Schlegelmilch, & Ollenburg, 2013) There has, however, been debate about the significance of risk in adventure tourism motivations. In recent years, most researchers have concluded that risk is not, actually, a motivation for participating in adventure tourism among the vast majority of participants. (Buckley, 2012) Rather feelings of fear or thrill more appropriately define this type of motivation that drives individuals to seek out adventure activities. Therefore, it is a “thrill-seeking” framework rather than “risk-seeking” within which adventure tourism motivations should be examined. (Buckley, 2012; Carnicelli-Filho et al., 2010; Cater, 2006)

That is not to say, however, that the actual risk associated with adventure tourism activities should be minimized. Particularly in the case of “hard” adventure tourism, there tends to be real and often eminent threats to safety involved in many of these activities. (Bentley et al., 2006; Bentley et al., 2007; Bentley & Page, 2001, 2008; Page et al., 2005) Much of the research on the safety and risk management in adventure tourism has focused on New Zealand (Bentley et al., 2010; Bentley et al., 2008; Bentley et al., 2001). After a decade of research on the topic, Bentley and Page (2008) discuss the fact that although most adventure tourism involves commercially organized activities, in which participants do not expect to experience actual mortal danger, the nature of the activities and the environments in which they occur do, in fact, come with some associated risk. In summarizing years of investigations into the danger associated with adventure tourism, Bentley and Page (2008) found that some aspects that jeopardize safety are often uncontrollable such as natural factors including environmental hazards and weather conditions. Other factors which increase the likelihood of injury, however, include extra-organizational influences such as weather reports and human resourcing issues and latent failures such as operating environment and equipment as well as work management factors which are more controllable. In addition, there are active failures which refer to failures by staff or participants (clients) which accounts for neglect, recklessness and human error. (Bentley & Page, 2008) Bentley and Page (2008) conclude that there is actually a relatively high number of injuries and, in some cases, deaths related to the adventure tourism industry, but that very little research has been done and that accidents seem to remain relatively unnoticed. (Bentley & Page, 2008) Bentley and Page (2008) argue that a more rigorous global risk management plan should be implemented in order to minimize the danger associated with adventure tourism.

## **2.2. SCUBA Diving**

There are myriad activities which fall under the umbrella of adventure tourism. (Sung et al., 2000) However, one, which has existed in discussions of adventure recreation for quite some time is SCUBA diving, which is considered one of the most popular adventure tourism activities. (Garrod & Gossling, 2008; Lemke & Olech, 2011) In recent years, as has been the case with adventure tourism worldwide, SCUBA diving has seen significant growth. It is estimated that over 22 million people have obtained a SCUBA diving qualification from the Professional Association of Dive Instructors (PADI), an international SCUBA regulatory and training body. (Lück, 2016)

SCUBA diving is considered a hard adventure activity due to the inherent risk involved as well as the relatively high levels of skills and training required to engage in the activity. (Sung et al., 2000) In the current, highly commercialized adventure tourism context, SCUBA is somewhat unique in the necessity of relatively extensive training to dive in open water. (Musa & Dimmock, 2012) Regulation and standardization of adventure tourism is one of key concerns highlighted in literature. (Rogerson, 2007; Williams & Soutar, 2005) Furthermore, there are global regulations regarding SCUBA diving and internationally recognized qualifications required for most reputable dive operations throughout the world. (Musa & Dimmock, 2012)

One of the primary avenues for research within the context of SCUBA diving tourism is the environmental impacts of the industry on the often fragile and unique marine environments within which the activities take place. (Musa & Dimmock, 2013) A great deal of research has substantiated the negative environmental impacts the SCUBA diving tourism industry has had on marine environments. (Barker & Roberts, 2004; Davis & Tisdell, 1995; Lamb et al., 2014; Lucrezi et al., 2013b; Rouphael & Inglis, 1997; Tratalos & Austin, 2001) The majority of this body of work has focused on coral reef environments, as most recreational diving is done in and around tropical and subtropical coral reefs. (Lew, 2013) With the growth in SCUBA diving tourism, particularly in developing countries, the concerns surrounding the impacts of diving on these fragile environments is warranted. (Lew, 2013) Not only are impacts on marine environments by diving important from an environmental protection perspective, the destruction of reef ecosystems in popular dive sites also causes problems for future tourism, as the sites become less desirable. (Musa & Dimmock, 2013)

Much of the impacts caused by SCUBA diving are related to trampling, or the knocking of marine species such as coral. (Hawkins et al., 1999; Hawkins & Roberts, 1993) Research has shown that certain coral colonies are more susceptible to the effects of diving than others, with old massive coral colonies impacted most severely. (Hawkins et al., 1999) The most vulnerable type of coral to breaking caused by diving are branching corals. (Rouphael & Inglis, 1997) In addition to coral, fish populations which depend on coral reef environments for survival are being jeopardized. (Hasler & Ott, 2008) Other research has shown increases in diving can also indirectly impact coral environments through the movement and introduction of foreign particles which have increased disease in exponential fashion among coral in popular dive spots. (Lamb et al., 2014) Some suggestions for minimizing impacts caused by diving include to disperse diving activities more widely, as research has shown that in places where diving is highly regulated and strict carrying capacities implemented, there has been minimal damage to marine ecosystems. (Davis & Tisdell, 1995; Lamb et al., 2014) Rouphael and Inglis (1997) also suggest the minimization of diver training activities in dive sites that are particularly vulnerable to damage. Another environmental management strategy, which would also assist in the economic contributions of dive tourism, is to charge divers a small fee to access particularly vulnerable sites such as those found in marine protected areas (MPA). The majority of

dive tourism takes places near or within MPAs, and therefore implementing a small fee to allow access into these spaces among divers could account for significant revenue generation, particularly in some of the small developing countries in which much dive tourism takes place. (Green & Donnelly, 2003)

When considering economic development, there has been some evidence that dive tourism has increased local economic development in towns that are located close to dive sites. (Musa & Dimmock, 2012) In the case of Thailand, research has shown that dive tourism contributes significantly to the local economies of small islands in Thailand, with aggregate benefits of up to US\$71 million. (Asafu-Adjaye & Tapsuwan, 2008) A study on the socio-economic impacts of whale shark diving in the Seychelles estimated that US\$ 4.99 million is generated directly from diving over the 14-week whale shark season. (Rowat & Engelhardt, 2007) In the case of Palau, a small island in the Pacific Ocean, it is estimated that 8% of the country's GDP is generated from shark diving. (Vianna et al., 2012) These results demonstrate the important economic contribution that diving can have, particularly in developing countries. Vianna et al. (2012) also compared the income generated from diving with the possible income that could be generated from fishing the sharks, demonstrating that diving can have a positive environmental impact as it puts an economic value on protecting marine life. Notwithstanding local economic contributions in terms of available employment and potential for expanded business opportunities, certain negative impacts of dive tourism are observed for example by Daldeniz and Hampton (2013) in research on Malaysia. Levels of participation among local communities in dive tourism was variable with financial restrictions a major constraint upon host community involvement.

In terms of analysing the dynamics and characteristics of people who engage in SCUBA diving tourism, some interesting trends have emerged in international literature. Research has shown that some of the factors which positively influence diver satisfaction are the marine biodiversity of dive sites, the accessibility of dive sites as well as staff etiquette. (Musa, 2002) Service quality was found to be an important indicator of future intentions while novelty influences emotional satisfaction. (Palau-Saumell et al., 2014) Musa (2002) found that some deterrents were overcrowding, pollution and noise. In considering customer satisfaction more closely, Ince and Bowen (2011) found the most important factors influencing satisfaction were the marine life, visibility and social aspects. The latter is significant as more broad adventure tourism research has demonstrated the importance of comradery and developing communities amongst adventure tourists, particularly those who specialize in specific types of activities. (Shoham et al., 2000; Swarbrooke et al., 2003)

### **2.3. Adventure Tourism in South Africa**

Tourism is often seen as a tool for economic development, particularly among countries within the global South, including South Africa. (Visser & Rogerson, 2004) Adventure tourism provides a number of opportunities for development within these countries as many hold unique and relatively pristine landscapes in which activities can take place. (Giddy & Webb, 2016a; McKay, 2013) A number of challenges have been previously highlighted with regards to the development of adventure tourism in South Africa. (McKay, 2013; Rogerson, 2007) The primary concerns, highlighted by these studies, is the standardization and regulation of the industry, training opportunities for qualified adventure tourism staff and the gap in marketing South Africa as an adventure destination. In addition, some research has highlighted the environmental management concerns, as the natural environment has been noted as a primary motivation for drawing adventure tourists to South Africa. (Giddy & Webb, 2016b; McKay, 2013)

When considering the different types of adventure tourism activities available in South Africa, the most popular, historically, would be considered “soft” adventure such a wildlife viewing, namely safari tours. (du Plessis et al., 2015; McKay, 2016) However, more recently, there has been a growth in hard adventure tourism. South Africa holds many world records for adventure activities, including the highest bungee bridge in the world, the tallest single-decent abseil and the fastest zipline. (Dirty Boots, 2018) Furthermore, the shark cage diving industry has grown at a tremendous pace with visitors coming from all over the world to have up-close encounters with the famous great white shark. (Johnson & Kock, 2006)

Adventure tourism has been an important economic contributor to the economies of many small towns throughout South Africa. (McKay, 2016) In the case of shark cage diving, it has brought significant revenue to the small town of Gansbaai in the Western Cape, from which shark cage diving boats launch to explore what is known as “shark alley” a popular spot for viewing great white sharks. (Johnson & Kock, 2006) Relatively little research, has focused on SCUBA diving, specifically, in South Africa. However, South Africa hosts two of the top 30 dive sites globally, as ranked by divers ([www.scubatravel.co.uk](http://www.scubatravel.co.uk)). Both of these, and many other popular dive sites in South Africa are located along the coastline of the KwaZulu-Natal province. (Palmer et al., 2011)

Some research has been conducted on the SCUBA industry in the town of Sodwana Bay, located along the northeast coast of KwaZulu-Natal which is a popular dive destination. (Geldenhuys, van der Merwe, & Slabbert, 2014; Lucrezi et al., 2013a; Mograbi & Rogerson, 2007) One study examined the characteristics of SCUBA divers in Sodwana and found that most participants are men and younger adults, with a mean age of 34 years old. (Geldenhuys et al., 2014) Geldenhuys et al. (2014) also analysed the motivations of SCUBA divers, finding the most common motivations to be physical challenge, commitment to SCUBA diving, relaxation and escapism as well as exploration and discovery. Giddy (2018a) found that SCUBA divers in the small resort town of Plettenberg Bay were most often motivated by enjoying and interacting with the natural environment as well as novelty. The latter is likely linked to the novelty of new marine environments, as all had participated in Scuba multiple times previously. In terms of the environmental impacts of diving in South Africa, Lucrezi et al. (2013a) found that divers’ perceptions of damage to reef systems caused by diving were disconnected from the reality of impacts which have been documented. Divers did not view photography as damaging to reef ecosystems, while previous research has shown that photographing while diving increases the amount of damage caused significantly. (Barker & Roberts, 2004) Furthermore, this group of divers felt that observing from one meter or less from marine wildlife was acceptable practice and there were numerous indications of direct encounters with wildlife, both of which are concerning in terms of appropriate behaviour to minimize environmental damage. (Lucrezi et al., 2013a)

A study was also undertaken on the impact of the scuba diving industry on the socio-economic structure of Sodwana Bay, by examining it in terms of pro-poor economic development initiatives. (Mograbi & Rogerson, 2007) The study found that although the majority of tourism operations are run by the white population, who are the primary beneficiaries of tourism revenue, there has been a significant increase in wages and employment opportunities for poor communities. Another study focused on the famous Sardine Run which occurs along South Africa’s east coast in July and August each year. (Coetzee et al., 2010) The Sardine Run is a natural oceanic migration even in which masses of sardines swim up the eastern coast of South Africa, to escape cold winter waters in Antarctica. (Coetzee et al., 2010) When considering the socio-economic impacts of the Sardine Run, Dicken (2010) emphasizes the potential for dive tourism development surrounding this event. Dicken (2010)

discusses the potential value of the event to the various communities along the route of the Sardine Run as a mechanism for local economic development. Dicken (2010) suggests that there is an untapped resource available for development as the economic and sociological values attained by dive tourism could establish key functional roles in the Pondoland communities who live in the areas surrounding the KwaZulu-Natal coastline. These studies demonstrate the potential for the growth of dive tourism, particularly along South Africa's east coast, as means of increasingly local economic development.

### **3. Methodology**

This study is based on data collected through questionnaires. Questionnaires were utilized based on the ability to obtain a sufficient sample size to investigate overall trends among the sample population. The questionnaire included both fixed-response and open-ended questions. Questionnaires were self-administered. The questionnaire included basic demographic details as well as information on a number of different aspects related to SCUBA diving in South Africa. Some important aspects investigated were the perceptions and experiences of SCUBA divers throughout the country, as well as their economic expenditures related to diving tourism excursions.

The population analysed in this study is SCUBA divers in South Africa. A sample of Scuba divers in South Africa was obtained through two techniques. First, an attempt was made to target divers by visiting two popular dive sites along the South Coast of the KwaZulu Natal Province, namely Umkomaas and Scottburgh, which are in proximity to the popular dive site, Aliwal Shoal. Dive companies were approached to allow surveying of their clients. Data collection proved difficult and limited, with only 29 complete and usable questionnaires. Therefore, a second round of data collection was conducted by surveying attendees at the South African National Boat and Dive Exhibition which is held annually in Johannesburg ([myboatshow.co.za](http://myboatshow.co.za), n.d.). Only SCUBA divers were targeted at this event. An additional 77 questionnaires were completed.

As data included both fixed-response and open-ended questions, they were analysed separately. All fixed-response questions were either nominal or ordinal, and therefore simple descriptive statistical analysis techniques were utilized. Simple counts and percentages are used to classify fixed-response questions. In terms of open-ended questions, all responses were transcribed and analysed, using a content analysis, to extract themes. Categories were generated based on themes and responses subsequently categorized. This qualitative data was then quantified when deemed appropriate.

### **4. Results**

A total of 106 usable questionnaires were collected over the two data collection periods and are used for analysis. Included in the discussion of results is the profile of respondents, an investigation into their diving experiences and perceptions of diving as well as insight into the potential economic impact of diving through divers' expenditure.

#### **4.1. Profile of Respondents**

The respondents included in this sample were primarily between the ages of 31 and 45 with the youngest under 20 and the oldest over 55 years old. There were slightly more male (59%) than female (41%) respondents. Most respondents were found to be South African, accounting for 83% of the sample. The international respondents were primarily from Germany and the United Kingdom.

Among the South African respondents (n = 88), 67% were from Gauteng and 28% from KwaZulu-Natal, both locations in which surveying took place. Many of the respondents from KwaZulu-Natal were from the areas surrounding Aliwal Shoal, which demonstrates a trend of the adventure recreation market in the area and frequent participation in this activity. An interesting finding is seen in the racial make-up of respondents. Although small, there is evidence of representation of ‘non-white’ racial groups, with 16% of respondents being black, 5% of Indian decent and 4% classified as coloured. This should be seen as positive for the potential growth of the industry’s domestic market to other racial groups. Most respondents (65%) had some level of tertiary education in the form of a national diploma or undergraduate degree, while 18% also held a postgraduate qualification. The majority of respondents, 75%, were employed, 22% students, 7% retired and 1% unemployed.

**4.2. Diving Experiences and Perceptions**

The most common dive sites that respondents listed as frequenting often were Aliwal Shoal, mentioned by 15 respondents and Sodwana Bay mentioned by 28. The former is likely linked to the divers surveyed at this site as well as the fact that many of those respondents were from the surrounding area. Participants spent an average of 6 nights on each dive trip, with a maximum of 30 nights and a minimum of 0 nights. The latter result is likely linked to the 8% of respondents who live in proximity to dive sights and indicated that they stayed at their primary residence. In Table 1 below, more characteristics of participants’ travel patterns during diving excursions are highlighted. The most common types of accommodation utilized were guesthouses/B&Bs or camping.

**Table 1. Diver Travel Patterns**

Dives per annum	%	Trip Planning	%	Accommodation	%	Who do you dive with?	%
3 - 5 Dives	64%	Planned Themselves	45%	Guesthouse/ B&B	41%	Friends	29%
6 - 10 Dives	14%	Organized by Tour Operator	24%	Camping	17%	A Dive Buddy	24%
More than 10 Dives	16%	Organized by Friends	14%	Other	10%	Family	18%
				Primary Residence	8%	A Dive Club	13%

Respondents largely dive multiple times a year, though not all that frequently. A significant proportion, however, dive more than 10 times a year, which is an average of nearly once per month. This demonstrates a trend of more frequent diving recreation. Most respondents also planned the trips themselves, however, a significant number used a tour operator. The latter will likely increase the overall expenditure of the trip, contributing more, economically, than those planning the trips on their own. It also demonstrates that there is a significant market for guided SCUBA excursions. In addition, it appears that most divers travel either with friends or a “dive buddy” demonstrating the social nature of this type of adventure tourism. The significant number who identify their dive partners as “dive buddies” rather than friends also indicates the development of a specific dive community which has been associated with continual participation in adventure tourism in the past. (Shoham et al., 2000)

Understanding motivations for participating in any tourism activities provides insight into the drivers of decision making among specific groups and is significant in marketing and future development of the industry. The question asking respondents their motivations for Scuba diving was left open-ended. The most common responses obtained were relatively vague and along the line of “I love it” (16%) or “It’s fun” (14%). Some were motivated by factors associated with tourism more broadly, such as the idea of “escapism” (8%). Others mentioned aspects related to adventure tourism more specifically, stating they were motivated by the “adventure” (14%) or “thrill-seeking” (8%) associated with



SCUBA diving while a few stated they sought a “challenge” (9%) or to “learn new skills” (3%). One other response, mentioned by just 3% of participants, was “immersion in nature.”

Respondents were also asked about what they perceive to be aspects of South Africa that both attract and deter people from engaging in dive tourism in the country. This question was left open-ended, so a variety of responses were given which are displayed in Table 2, below.

**Table 2. Attractions and Inhibitors of Dive Tourism in South Africa**

<b>Attract Dive Tourism</b>	<b>%</b>	<b>Inhibit Dive Tourism</b>	<b>%</b>
Nature/Wildlife (Marine and Game Reserves)	62%	Crime/Violence	24%
Unique Cultural Experiences	13%	Cost/Expenses	23%
Favorable Climate Conditions	11%	Politics/Government	10%
Adventure	4%	Pollution	8%
Excitement	5%	Fear of Diving	7%
Value for Money	2%	Negative Perceptions/Apartheid	5%
Underwater Wrecks	2%	Lack of Exposure	5%
		Hard to Reach Destinations	4%
		Lack of Professional Facilities	4%
		Poor Healthcare	3%

These results show that South African divers feel that there are a number of different aspects that both encourage participation in the dive industry and inhibit it. The most common aspects that attract tourists, according to these respondents, is the nature and/or wildlife found in the country. Included here was both marine nature/wildlife as well as land-based wildlife. This is not surprising as previous research has shown that the natural environment and wildlife are important pull factors for drawing tourists to visit South Africa more broadly. (du Plessis et al., 2015; Giddy, 2018b) And, as mentioned above, the natural environment has been a particularly important factor in attracting adventure tourists to South Africa, more specifically. (Giddy & Webb, 2016a) Crime and costs were seen as the biggest inhibitors to the growth of dive tourism in South Africa. The former is a common factor listed as discouraging tourism in the country more broadly. In terms of costs, diving is actually relatively affordable in South Africa, when compared to other dive locations. However, it is a relatively expensive hobby to pursue, generally, particularly among domestic tourists. These costs are highlighted below in the discussion of the economic contribution of dive tourism.

Due to the high level of risk associated with adventure tourism, particularly SCUBA diving which has been in discussed in detail above, respondents were also asked about their personal perceptions of the risk involved in adventure tourism shown in Table 3.

**Table 3. Perceptions of Risk**

<b>Perception of the Risk of SCUBA Diving</b>	<b>%</b>	<b>Concern of Risk of Injury or Death in SCUBA Diving</b>	<b>%</b>
No risk, diving is completely safe	12%	Yes, I worry all the time	1%
Some risk, but acceptable	59%	Yes, but I am skilled and experienced	46%
Risky, but manageable	18%	Yes, but I have life cover and medical aid	13%
Very risky but worth it	9%	Yes, but I am on an organized tour	2%
		No, not aware	2%

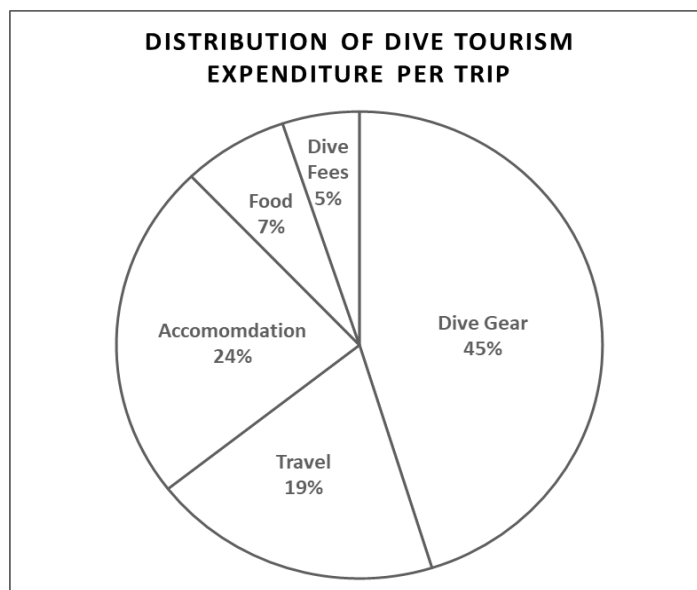
The results show that most of the divers within this sample recognize the risk associated with SCUBA diving but feel that they possess the necessary skills to ensure their own safety. It is interesting, however, that several respondents find the activity relatively risky but continue to participate and also troubling that some find it not risky at all or are completely unaware of the risks involved.

The importance of tourism for developing economies, such as South Africa, is particularly significant, as tourism accounts for 9% of the country’s GDP. (Statistics South Africa, 2016) The economic contribution of specific tourism subsectors should be investigated in order to determine which tourism products provide significant income. Below is a breakdown of the expenditure of the dive tourists included in this study. It includes the percentage of expenditure spent on different components of an individual trip (Figure 1), as well as total figures spent on different aspects of dive tourism, shown in Table 4. Respondents were asked to estimate approximately how much money they spend on different component of SCUBA diving excursions.

**Table 3. Total Expenditure on SCUBA diving trips**

Nature of Expense	Total Expenditure in ZAR (and USD)
Dive Gear	R241,460 (\$36,039)
Travel	R135,799 (\$20,269)
Accommodation	R157,127 (\$23,452)
Training	R48,900 (\$7,299)
Food	R56,250 (\$8,396)
Dive Fees	R58,063 (\$8,666)
Other	R55,700 (\$8,313)
<b>TOTAL</b>	<b>R753,298 (\$112,433)</b>

Although they represent a relatively small sample of the overall SCUBA diving population in South Africa, the results show some significant trends. Using these figures, SCUBA divers spend an average of R7,107 (USD\$1,60) per person on each excursion. With an average duration of the trip at 6 nights, this means that an average of R1,185 (USD\$177) are spent per person per night on South African dive tourism. Even if each diver only takes the minimum number of trips mentioned (3 dives per year), that is still a significant contribution, particularly to the local economies of the small towns surrounding popular dive sites. It should be noted that the costs for training tends to be a once-off expense. In some cases, the same would be true of equipment, though many divers, who engaging in diving less frequently, are likely to hire equipment. In Figure 1 below, the breakdown of the contribution of different costs are demonstrated, on an individual basis. Arguably, the most significant costs are those related to the purchase of dive equipment.



**Figure 1. The distribution of dive tourism expenditure**

Source: Authors

This finding has important implications for the contribution of dive tourism to the outdoor sports retail sector, which often supplies this equipment. It is also likely that those who dive less frequently rent equipment, which could contribute to the overall income generated by dive operators. This is despite the relatively small proportion of expenditure on actual dive fees. Interestingly, accommodation and travel also account for relatively significant proportions of expenditures related to dive tourism. This demonstrates the potential significant contribution of dive tourism to the larger national tourism industry and particularly the accommodation sector in the small towns surrounding dive sites.

Finally, participants were asked about what other activities they would like to engage in or would pursue while travelling. Most of the activities mentioned were other types of adventure tourism, which demonstrates a general pattern of adventure tourism participation, a notion which has been substantiated by previous literature. (Giddy, 2018; Pomfret & Bramwell, 2016) The most common response was shark cage diving, which is closely related to SCUBA diving though without requiring the prerequisite qualifications required for SCUBA and with the safety of the cage to protect from sharks. Other adventure activities in which respondents intended to participate were hiking/canyoning, biking and game viewing. The only non-adventure activity mentioned, in which participants intended to engage was shopping, a common activity among tourists generally.

## **5. Conclusion**

The South African SCUBA dive tourism industry shows some interesting dynamics highlighted in the results above. One of the most significant aspects that emerged is the economic contribution of dive tourism to the South African tourism economy. The findings show that, currently, tourism excursions associated with engaging in SCUBA diving have relatively high expenditures, particularly when considering the length of trip and the fact that the majority are domestic tourists. This has important ramifications as to the contribution of dive tourism towards the South African economy. It is also significant in that much of the income goes into the local economies of small towns surrounding dive sites. As demonstrated in previous literature, diving can contribute enormously to local economic development near desirable dive sites. (Asafu-Adjaye et al., 2007; Vianna et al., 2012)

In addition, the findings demonstrate certain of the defining characteristics of SCUBA dive tourism, including the demographics of participants, their broad travel patterns and dynamics of travel related specifically to diving. Participants were relatively young, mostly male and predominantly white. This said, the observed participation of groups of 'non-white' divers demonstrates an interesting trend in regard to the diversification of adventure tourism. This is important due to the emergence and increasing importance attached to the growth of the domestic tourism market in South Africa. Another interesting trend is the relatively high number of respondents who were South African, especially the number who live in relative proximity to some of the dive sights. This shows that SCUBA, unlike many commercial adventure tourism products in South Africa, is also conducted recreationally and differs from previous research which found that most adventure tourists were international. (Giddy, 2018b)

In terms of travel patterns, it is clear that SCUBA diving is viewed as a relatively social activity, as most respondents typically dive with friends or SCUBA partners. The latter finding also highlights the significance of the development of communities specifically linked to SCUBA diving, which has been shown in previous research to be an indicator of continued repeat participation in a specific type of adventure tourism activity. (Swarbrooke et al., 2003) Primary motivations were found to be vague

positive associations with the activity or linked to the thrill-seeking and adventurous component. This is notable when considering the results found in Giddy (2018a) who disclosed that SCUBA divers were most often motivated by interactions with nature provided by the activity and is in contrast to other studies on adventure tourism in South Africa, which have found the thrilling aspects, particularly among repeat adventure tourists to be relatively insignificant. (Giddy & Webb, 2016a; 2016b) However, in these results nature interactions were relatively insignificant. The results also substantiate previous research which has found that adventure tourists tend to seek out a range of adventure activities to engage in while on holiday, developing a profile as a broad “adventure tourists”. (Giddy, 2018b)

Important management and tourism development implications emerge from these findings. The potential contribution of dive tourism to the South African economy is clear. South Africa holds some of the most well-known dive sites in the world. However, a great deal of improvement could be made to increase dive tourism throughout the country. One way is the increase in marketing of South Africa as a dive destination, encouraging divers to visit multiple dive sites throughout the country. In addition, as has been mentioned in previous research on adventure tourism in South Africa, more broadly, it is important to consider marketing South Africa, and specific locations within South Africa as an “adventure destination”. (Rogerson, 2007) Linking diving in places like Umkomaas and Sodwana Bay with other adventure products in the vicinity of important dive sites would assist in this regard. The discussion by Dicken (2010) on the development of tourism surrounding the Sardine Run is another potential strategy as shorter dive season with particularly attractive marine life appears a promising approach at least as shown in the experience of Seychelles. (Rowat & Engelhardt, 2007) Another potential strategy, which could increase dive tourism, is to develop the tourism infrastructure in the towns close to dive sites. However, this only represents a relatively small sample of divers in South Africa. Additional research on the expenditure of SCUBA divers, as well as more detail on their characteristics, travel behaviour, and motivations could assist in the effort to increase the development of dive tourism in South Africa and of its contribution to the wider expansion of the marine tourism economy of the country.

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## **7. References**

- Adventure Travel Society: Making your vacation dreams come true for over 30 years. (2000) *Adventure Travel Society* Retrieved May 4, 2018, from <http://www.adventuretravel.com/>.
- Asafu-Adjaye, J. & Tapsuwan, S. (2008). A contingent valuation study of scuba diving benefits: Case study in Mu Ko Similan Marine National Park, Thailand. *Tourism Management*, Vol. 29, No. 6, pp. 1122–1130.
- Barker, N.H.L. & Roberts, C.M. (2004). Scuba diver behaviour and the management of diving impacts on coral reefs. *Biological Conservation*, Vol. 120, No. 4, pp. 481–489.
- Beedie, P. (2001). Mountain guiding and adventure tourism: reflections on the choreography of the experience. *Leisure Studies*, Vol. 22, No. 2, pp. 147–167.
- Beedie, P. & Hudson, S. (2003). Emergence of mountain-based adventure tourism. *Annals of Tourism Research*, Vol. 30, No. 3, pp. 625–643.

- Bell, C. & Lyall, J. (2002). The accelerated sublime: Thrill-seeking adventure heroes in the commodified landscape. In *Tourism: between place and performance*, pp. 21–37. New York: Berghahn Books.
- Bentley, T.; Cater, C. & Page, S.J. (2010). Adventure and ecotourism safety in Queensland: Operator experiences and practice. *Tourism Management*, Vol. 31, No. 5, pp. 563–571.
- Bentley, T.; Macky, K. & Edwards, J. (2006). Injuries to New Zealanders participating in adventure tourism and adventure sports : an analysis of Accident Compensation Corporation, *New Zealand Medical Journal*, Vol. 119, No. 1247, U2359.
- Bentley, T.; Page, S. & Edwards, J. (2008). Monitoring Injury in the New Zealand Adventure Tourism Sector: An Operator Survey, Vol. 15, No. 6, pp. 395–403.
- Bentley, T. & Page, S.J. (2001). Scoping the extent of adventure tourism accidents. *Annals of Tourism Research*, Vol. 28, No. 3, pp. 705–726.
- Bentley, T. & Page, S.J. (2008). A decade of injury monitoring in the New Zealand adventure tourism sector: A summary risk analysis. *Tourism Management*, Vol. 29, No. 5, pp. 857–869.
- Bentley, T.; Page, S.J. & Laird, I.S. (2001). Accidents in the New Zealand adventure tourism industry. *Safety Science*, Vol. 38, No. 1, pp. 31–48.
- Bentley, T.; Page, S.J. & Macky, K. (2007). Adventure tourism and adventure sports injury: the New Zealand experience. *Applied Ergonomics*, Vol. 38, No. 6, pp. 791–796.
- Biggs, Hicks C.C.; Cinner, J.E. & Hall, C.M. (2015). Marine tourism in the face of global change: the resilience of enterprises to crises in Thailand and Australia. *Ocean & Coastal Management*, Vol. 105, pp. 65-74.
- Buckley, R. (2006). *Adventure Tourism*. Wallingford: CABI.
- Buckley, R. (2010). *Adventure Tourism Management*. Amsterdam: Butterworth-Heinemann.
- Buckley, R. (2012). Rush as a key motivation in skilled adventure tourism: Resolving the risk recreation paradox. *Tourism Management*, Vol. 33, No. 4, pp. 961–970.
- Carnicelli-Filho, S.; Schwartz, G.M. & Tahara, A.K. (2010). Fear and adventure tourism in Brazil. *Tourism Management*, Vol. 31, No. 6, pp. 953–956.
- Cater, C.I. (2006). Playing with risk? participant perceptions of risk and management implications in adventure tourism. *Tourism Management*, Vol. 27, No. 2, pp. 317–325.
- Coetzee, J.C.; p Merkle, D.; Hutchings, L.; van de Lingen, C.D.; van den Berg, M. & Durholtz, M.S. (2010). The 2005 KwaZulu-Natal sardine run survey sheds new light on the ecology of small pelagic fish off the east coast of South Africa, *African Journal of Marine Science*, Vol. 32, No. 2, pp. 337-360.
- Daldeniz, B. & Hampton, M.P. (2013). Dive tourism and local communities: Active participation or subject to impacts?: Case studies from Malaysia. *International Journal of Tourism Research*, Vol. 15, pp. 507-520.
- Davis, D. & Tisdell, C. (1995). Recreational scuba-diving and carrying capacity in marine protected areas. *Ocean & Coastal Management*, Vol. 26, No. 1, pp. 19–40.
- Department of Tourism (2018). *The National Tourism Research Agenda: Creating New Knowledge Through Collaborative Research*. Pretoria: National Department of Tourism.
- Dicken, M.L. (2010). Socio-economic aspects of boat-based ecotourism during the sardine run within the Pondoland Marine Protected Area, South Africa, *African Journal of Marine Science*, Vol. 32, No. 2, pp. 405-411.
- Dimmock, K. & Cummins, T. (2013). *History of scuba diving tourism*. In G. Musa & K. Dimmock (Eds.), *Scuba Diving Tourism*, pp. 14–28. New York: Routledge.
- Dirty Boots. (2018). Adventure Holidays in South Africa. Retrieved May 22, 2018, from <https://www.dirtyboots.co.za/adventure-holidays/overview>.
- du Plessis, E.; Saayman, P.M. & Merwe, A. Van Der. (2015). What makes South African Tourism competitive? *African Journal of Hospitality, Tourism and Leisure*, Vol. 4, No. (2), pp. 1–14.
- Dwyer, L. (2017). Coastal and marine tourism in the Indian Ocean Rim: Challenges and opportunities. *Journal of Indian Ocean Rim Studies*, Vol. 1, No. 1, pp. 38-55.

- Dwyer, L. (2018). Emerging ocean industries: implications for sustainable tourism development. *Tourism in Marine Environments*, Vol. 13, No. 1, pp. 25-40.
- Ewert, A. & Hollenhorst, S.J. (1989). Testing the adventure model: Empirical support for a model of risk recreation participation. *Journal of Leisure Research*, Vol. 21, No. 2, pp. 124-139.
- Garrod, B. & Gossling, S. eds. (2008). *New Frontiers in Marine Tourism: Diving Experiences, Sustainability, Management*. London: Routledge.
- Goldenhuyts, L.-L.; van der Merwe, P. & Slabbert, E. (2014). Who is the scuba diver that visits Sodwana Bay and why? *South African Journal for Research in Sport, Physical Education and Recreation*, Vol. 36, No. 2, pp. 91-104.
- Giddy J.K. (2018a). Adventure tourism motivations: A push and pull factor approach. *Bulletin of Geography: Socioeconomic series*, Vol. 42, in press.
- Giddy, J.K. (2018b). A profile of commercial adventure tourism participants in South Africa. *Anatolia*, Vol. 29, No. 1, pp. 40-51.
- Giddy, J.K. & Webb, N.L. (2016a). The influence of the environment on adventure tourism: From motivations to experiences. *Current Issues in Tourism*, pp. 1-12.
- Giddy, J.K. & Webb, N.L. (2016b). The influence of the environment on motivations to participate in adventure tourism: The case of the Tsitsikamma. *South African Geographical Journal*, Vol. 98, No. 2, pp. 351-366.
- Green, E. & Donnelly, R. (2003). Recreational scuba diving in Caribbean Marine Protected Areas: Do the users pay? *AMBIO: A Journal of the Human Environment*, Vol. 32, No. 2, pp. 140-144.
- Hall, C. (1992). *Adventure, sport and health tourism*. In C. M. Hall & B. Weiler (Eds.). *Special Interest Tourism*. London: Belhaven Press, pp. 144-148.
- Hasler, H. & Ott, J.A. (2008). Diving down the reefs? Intensive diving tourism threatens the reefs of the northern Red Sea. *Marine Pollution Bulletin*, Vol. 56, No. 10, pp. 1788-1794.
- Hawkins, J.P. & Roberts, C.M. (1993). Effects of recreational scuba diving on coral reefs: Trampling on reef-flat communities. *The Journal of Applied Ecology*, Vol. 30, No. 1, pp. 25-30.
- Hawkins, J.P.; Roberts, C.M.; Van't Hof, T.; De Meyer, K.; Tratalos, J. & Aldam, C. (1999). Effects of recreational scuba diving on Caribbean coral and fish communities. *Conservation Biology*, Vol. 13, No. 4, pp. 888-897.
- Holyfield, L. (1999). Manufacturing adventure: The buying and selling of emotions. *Journal of Contemporary Ethnography*, Vol. 28, No. 1, pp. 3-32.
- Ince, T. & Bowen, D. (2011). Consumer satisfaction and services: insights from dive tourism. *The Service Industries Journal*, Vol. 31, No. 11, pp. 1769-1792.
- Johnson, R & Kock, A, 2006, South Africa's White Shark cage-diving industry - is their cause for concern? In Nel DC & Peschak TP (eds) *Finding a balance: White shark conservation and recreational safety in the inshore waters of Cape Town, South Africa; proceedings of a specialist workshop*. WWF South Africa Report Series - 2006/Marine/001.
- Kane, M.J. & Tucker, H. (2004). Adventure tourism: The freedom to play with reality. *Tourist Studies*, Vol. 4, No. 3, pp. 217-234.
- Lamb, J.B.; True, J.D.; Pirovaragorn, S. & Willis, B.L. (2014). Scuba diving damage and intensity of tourist activities increases coral disease prevalence. *Biological Conservation*, Vol. 178, pp. 88-96.
- Lemke, L. & Olech, L. (2011) *Dive Tourism*. In Papathanassis, A. (Ed). *The long tail of tourism*. Grabler Verlag: Springer.
- Lew, A.A. (2013). *A world geography of recreational scuba diving*. In G. Musa & K. Dimmock (Eds.). *Scuba Diving Tourism*. New York: Routledge, pp. 29-51.
- Lück, M. (2016). Scuba diving tourism. *Annals of Leisure Research*, Vol. 19, No. 2, pp. 259-261.
- Lucrezi, S.; Saayman, M. & Van Der Merwe, P. (2013a). Perceived diving impacts and management implications at a popular South African reef. *Coastal Management*, Vol. 41, No. 5, pp. 381-400.

- Lucrezi, S.; Saayman, M. & van der Merwe, P. (2013b). Managing diving impacts on reef ecosystems: Analysis of putative influences of motivations, marine life preferences and experience on divers' environmental perceptions. *Ocean & Coastal Management*, Vol. 76, pp. 52–63.
- McKay, T. (2013). Adventure tourism: opportunities and management challenges for SADC destinations. *Acta Academica*, Vol. 45, No. 3, pp. 30–62.
- McKay, T. (2016). The geography of the South African adventure tourism industry, *African Journal of Hospitality, Tourism and Leisure*, Vol. 5, No. 3, pp. 1–21.
- Miller, M.L. (1993). The rise of coastal and marine tourism. *Ocean & Coastal Management*, Vol. 20, pp. 181-199.
- Mograbi, J. & Rogerson, C.M. (2007). Maximising the local pro-poor impacts of dive tourism: Sodwana Bay, South Africa. *Urban Forum*, Vol. 18, No. 2, pp. 85–104.
- Musa, G. (2002). Sipadan: A SCUBA-diving paradise: An analysis of tourism impact, diver satisfaction and tourism management. *Tourism Geographies*, Vol. 4, No. 2, pp. 195–209.
- Musa, G. & Dimmock, K. (2012). Scuba Diving Tourism Introduction to Special Issue. *Tourism in Marine Environments*, Vol. 8, No. 1, pp. 1–5.
- Musa, G. & Dimmock, K. (2013). *Scuba Diving Tourism*. New York: Routledge.
- Page, S.J.; Bentley, T. & Walker, L. (2005). Tourist safety in New Zealand and Scotland. *Annals of Tourism Research*, Vol. 32, No. 1, pp. 150–166.
- Palau-Saumell, R.; Forgas-Coll, S.; Sánchez-García, J. & Prats-Planagumà, L. (2014). Managing dive centres: SCUBA divers' behavioural intentions. *European Sport Management Quarterly*, Vol. 14, No. 4, pp. 422–443.
- Palmer, B.; van der Elst, R. & Parak, O. (2011). *Understanding our Coast: A synopsis of KZN's coastal zone*. KwaZulu-Natal Department of Agriculture, Environmental Affairs and Rural Development, Cedara, Pietermaritzburg.
- Papageorgiou, M. (2016). Coastal and marine tourism: A challenging factor in marine spatial planning. *Ocean & Coastal Management*, Vol. 129, pp. 44-48.
- Pomfret, G. & Bramwell, B. (2016). The characteristics and motivational decisions of outdoor adventure tourists: a review and analysis. *Current Issues in Tourism*, Vol. 19, No. 14, pp. 1447-1478.
- Puchan, H. (2004). Living extreme: Adventure sports, media and commercialisation. *Journal of Communication Management*, Vol. 9, No. 2, pp. 171–178.
- Robinson, D.W. (1992). A descriptive model of enduring risk recreation involvement. *Journal of Leisure Research*, Vol. 24, No. 1, pp. 52–63.
- Rogerson, C.M. (2007). The challenges of developing adventure tourism in South Africa. *Africa Insight*, Vol. 37, No. 2, pp. 228–244.
- Rouphael, A.B. & Inglis, G.J. (1997). Impacts of recreational SCUBA diving at sites with different reef topographies. *Biological Conservation*, Vol. 82, No. 3, pp. 329–336.
- Rowat, D. & Engelhardt, U. (2007). Seychelles: A case study of community involvement in the development of whale shark ecotourism and its socio-economic impact. *Fisheries Research*, Vol. 84, No. 1, pp. 109–113.
- Schlegelmilch, F. & Ollenburg, C. (2013). Marketing the adventure: utilizing the aspects of risk/fear/thrill to target the youth traveller segment. *Tourism Review*, Vol. 68, No. 3, pp. 44-54.
- Scuba Travel (n.d.). *Scuba Travel: Worldwide Diving Guide and Reviews*. Available at: <https://www.scubatravel.co.uk/>. Accessed 20 March 2018.
- Shoham, A.; Rose, G.M. & Kahle, L.R. (2000). Practitioners of risky sports: A quantitative examination. *Journal of Business Research*, Vol. 47, pp. 237–251.
- Statistics South Africa. (2016). *Statistical release: Tourism and migration*. Pretoria: StatsSA
- Sung, H.Y.; Morrison, A.M. & O'Leary, J. (2000). Segmenting the adventure travel market by activities: From the North American industry providers' perspective. *Journal of Travel & Tourism Marketing*, Vol. 9, No. 4, pp. 37–41.
- Swarbrooke, J.; Beard, C.; Leckie, S. & Pomfret, G. (2003). *Adventure Tourism: A New Frontier*. Oxford: Elsevier.



- Tibirica, Y.; Birtles, A.; Valentine, P. & Miller, D.K. (2011). Diving tourism in Mozambique: an opportunity at risk? *Tourism in Marine Environments*, Vol. 7, No. 3-4, pp. 141-151.
- Tratalos, J.A. & Austin, T.J. (2001). Impacts of recreational SCUBA diving on coral communities of the Caribbean island of Grand Cayman. *Biological Conservation*, Vol. 102, No. 1, pp. 67-75.
- Varley, P. (2006). Confecting adventure and playing with meaning: The adventure commodification continuum. *Journal of Sport & Tourism*, Vol. 11, No. 2, pp. 173-194.
- Vianna, G.M.S.; Meekan, M.G.; Pannell, D.J.; Marsh, S.P. & Meeuwig, J.J. (2012). Socio-economic value and community benefits from shark-diving tourism in Palau: A sustainable use of reef shark populations. *Biological Conservation*, Vol. 145, No. 1, pp. 267-277.
- Visser, G. & Rogerson, C.M. (2004). Researching the South African tourism and development nexus. *GeoJournal*, Vol. 60, No. 3, pp. 201-215.
- Weber, K. (2001). Outdoor adventure tourism: A review of research approaches. *Annals of the Association of American Geographers*, Vol. 28, No. 2, pp. 360-377.
- Williams, P. & Soutar, G.N. (2005). Close to the "edge": Critical issues for adventure tourism operators. *Asia Pacific Journal of Tourism Research*, Vol. 10, No. 3, pp. 37-41.