AN ASSESSMENT OF VISITOR PROFILES, CONSUMPTION PATTERNS AND PERCEPTIONS AS WELL AS THE STATE OF COASTAL AND MARINE TOURISM (SPECIFICALLY BEACH) SITES IN KWAZULU-NATAL PROVINCE, SOUTH AFRICA

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Dissertation submitted in fulfilment of the academic requirements for the degree of Master of Science in Environmental Science

In the School of Agricultural, Earth and Environmental Sciences,

University of KwaZulu-Natal

2021

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DECLARATION

Submitted in fulfillment of the requirements for the degree of Masters in Science in the School of Agricultural, Earth and Environmental Sciences, in the College of Agriculture, Engineering and Science, University of KwaZulu-Natal, Westville campus, from March 2019 to November 2020, under the supervision of Prof Urmilla Bob and Dr Suveshnee Munien.

I, Dinolen Gounden, Registration Number 214564359, hereby declare that the content of this dissertation has not been submitted in any form to any tertiary institution and, except where the work of others is acknowledged in the text, the results are the author's original work.

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ACKNOWLEDGEMENTS

This work was performed under the supervision of Prof Urmilla Bob and Dr Suveshnee Munien. One could not have asked for better mentors, I am forever grateful for your unwavering support, insight, and guidance throughout this process. This research would not be possible without the opportunity granted and financial assistance provided by the National Department of Tourism (NDT), thank you for your great efforts in supporting students in tourism research. This study draws on NDRT-funded research undertaken in coastal locations in the Eastern Cape, KwaZulu-Natal and the Western Cape. Thank you to all visitors at the CMT locations, fieldworkers and data inputters who contributed in gathering the relevant information for this project. Lastly, many thanks are owed to my family and friends for your undying love and faith in me.

ABSTRACT

Coastal and Marine Tourism (CMT) is the main sub-sector of tourism and has substantial socio-economic and environmental importance. Specifically, CMT is a key economic contributor as well as creating opportunities for social recreational and leisure experiences and promoting conservation and environmental awareness concerning coastal and marine natural resources. However, there are increasing demands on CMT locations that include increases in visitor numbers, residential and business/ industrial demand, natural resource extraction activities, and conservation imperatives. Understanding and balancing these demands are central to sustainable CMT in South Africa. KwaZulu-Natal (with its mild climate and more than 600 km coastline with diverse coastal and marine resources and activities) is South Africa's key CMT destination. There is limited research that undertakes provincial level analyses that focus on demands and impacts. In this context, this study adopts the drivers, pressures, state, impact and response (DPSIR) framework to examine visitor profiles, consumption of coastal and marine activities, and perceptions of CMT locations in 41 selected beaches along KwaZulu-Natal's coastline. One thousand two hundred (1 200) visitor surveys were conducted at selected beach locations in KwaZulu-Natal using the spatially-based, systematic sampling approach. Additionally, the state of the beaches were assessed using an on-site observation checklist. Forty one beaches were purposively chosen for the on-site observations during off-peak and peak periods to consider seasonality. The use of mixed methods is a methodological contribution since there is limited research that integrates both visit surveys and observation assessments at CMT locations. The results indicate that diverse visitors in relation to socio-economic and spatial characteristics visit CMT locations. The main activities that visitors participate in are coastal recreational and leisure activities, with lower participation rates in relation to marine activities. The economic value of CMT emerges with most respondents being overnight visitors and day-trippers compared to local residents. Of importance is that KwaZulu-Natal is the main source market for CMT followed by Gauteng, the main domestic tourism market in the country. Repeat visitation was noted together with generally high levels of satisfaction with beach experiences and locations. The main visitor spend was on food and drinks, and transportation; with accommodation spend also being important in relation to overnight visitors. In relation to the on-site observations, the substantial increase in the numbers of visitors during peak compared to off-peak periods was evident. Of concern was that although signage indicated that there is awareness of aspects that need to be considered to restrict or limit usage at CMT locations, compliance of rules and regulations was almost non-existent, which is a serious concern. Thus, a key recommendation is that the management of CMT beach locations, especially during peak seasons when the number of visitors and consumption increases substantially, needs to be addressed. Training of security personnel to assist with raising awareness and enforcement is particularly important. Improving infrastructure and services (such as better waste management) is also recommended. This study indicates that the demands on CMT beach locations, which are popular destinations, need to be better managed to ensure socio-economic and environmental sustainability.

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ABBREVIATIONS

3S	sun, sea, and sand
CMT	Coastal and Marine Tourism
COVID-19	Coronavirus Disease 2019
DHET	Department of Higher Education and Training
DPME	Department of Planning, Monitoring and Evaluation
DPSER	drivers, pressures, state, ecosystem services and responses
DPSIR	drivers, pressures, state, impact and response
GDP	Gross Domestic Product
ICMTS	International Coastal and Marine Tourism Society
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
MPAs	Marine Protected Areas
NDT	National Department of Tourism
pH	potential of hydrogen
P	Present
SAPS	South African Police Services
SDG	Sustainable Development Goal
SPSS	Statistical Package for the Social Sciences
UKZN	University of KwaZulu-Natal
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNWTO	United Nations World Trade Organisation
UV	Ultra-Violet
WTO	World Trade Organisation

CHAPTER ONE
INTRODUCTION

1.1. Preamble

Tourism, according to Page and Connell (2020), is a global phenomenon that has continuously shown growth post the 2nd world war. The Coronavirus Disease 2019 (COVID-19) pandemic has disrupted all aspects of life globally, with the tourism sector being one of the most impacted given that the sector is dependent on travel and discretionary spend. As Hoque et al. (2020) state, the tourism sector has come to a standstill as a result of the pandemic. The tourism sector, nevertheless, will resume to being a major economic contributor once the disruptions associated with the pandemic cease. A key sub-sector of tourism is Coastal and Marine Tourism (CMT), the focus of this study, which is viewed as "the sector of the tourism industry that is based on tourists and visitors taking part in active and passive leisure and holidays pursuits or journeys on (or in) coastal waters, their shorelines and their immediate hinterlands" (Nulty et al., 2007: 1). The United Nations Environment Programme (UNEP) (2009: 10) states:

> Coastal tourism is based on a unique resource combination at the interface of land and sea offering amenities such as water, beaches, scenic beauty, rich terrestrial and marine biodiversity, diversified cultural and historic heritage, healthy food and good infrastructure.

Meyer-Arendt (2018) asserts that the prominence of CMT is evident in relation to the research being undertaken in this area, noting that "coastal tourism research is among the oldest prongs of tourism research conducted by geographers" within a longstanding interest of the evolution of coastal landscapes and the environmental impacts thereof being examined from the 1950s.

Brouwer et al. (2017) and Joseph (2017) indicate that worldwide CMT and leisure activities are viewed to have substantial economic, social and recreational value. Furthermore, Biggs et al. (2015) note that in many coastal regions, marine nature-based tourism and recreation has socio-economic importance and is a major incentive for conservation. CMT is deemed to be a component of the oceans or blue economy which the United Nations (UN) (UN, 2014) asserts simultaneously promotes economic growth, environmental sustainability, social inclusion and the strengthening

of oceans ecosystems. This implies that CMT has the potential to have substantial social, economic and environmental benefits. Specifically, the UN (2014) identifies the main blue economy sectors as CMT, maritime transport, sustainable fisheries and aquaculture, renewable marine energy and marine bio-prospecting. Rogerson (2020: 715) asserts:

> Multiple challenges confront the sustainable development of CMT including lack of (or inappropriate) planning for coastal area development and management, governance issues, limited innovation, access to finance for enterprise development, absence of data for monitoring, and, the severe threats posed to coastal destinations from advancing climate change. Above all, the imperative for economic inclusion and of achieving a greater spread of the benefits of tourism growth to local communities, especially for marginalised groups, is a critical policy issue.

Joseph (2017) raises concerns that there are severe pressures on CMT locations and environments because most coastal areas accommodate over 50% of the world's population and growing numbers of beach visitors. Similar sentiments are expressed by Oh et al. (2010) who highlight the importance of balancing local and tourist demands and expectations on coastal and marine resources since the demand for public beach access and facilities are increasing globally. Likewise, Liu et al. (2019) state that CMT has increased globally, which is associated with increased development in many major beach locations. CMT is also closely associated with leisure activities, as illustrated in the Figure below. Activities in coastal and marine locations are varied and often interrelated. Furthermore, Ban et al. (2017) state that global concerns over the state of marine biodiversity and resources have led to an increase in the number of Marine Protected Areas (MPAs) to promote conservation.

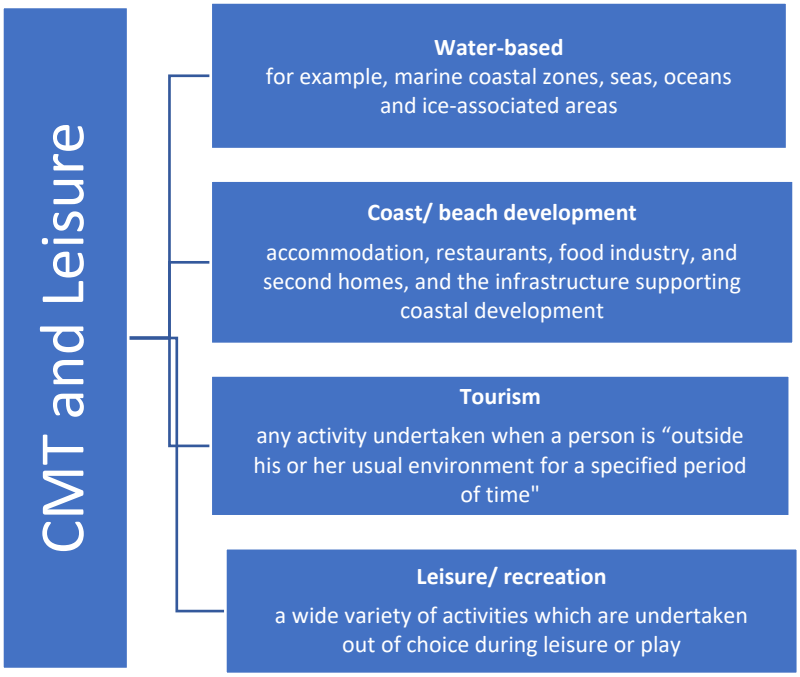

Figure 1.1: CMT and leisure activities (Maritime Cluster, 2015)

The International Coastal and Tourism Society (nd) indicates that coastal and marine systems are diverse and complex, comprising coastal ecosystems (such as estuaries, coastal dunes, rocky coasts, sandy beaches, coastal cliffs and intertidal/ areas), marine ecosystems (such as coral reefs, benthic, kelp forests, rocky reefs, continental shelves, sea-mounts, hydrothermal vents, open oceans and polar oceans), oceanic zones (epipelagic, mesopelagic, bathypelagic, abyssalpelagic and hadalpelagic), and coastal zones (inshore, littoral, foreshore and backshore). This study focuses on selected beach tourism locations along the KwaZulu-Natal coastline only.

Research indicates the importance of examining visitor profiles, perceptions and experiences for improved planning and tourism product development to promote long-term sustainability. Specifically, Atzori et al. (2018) show how perceptions of beach comfort influences destination choice and future travel preferences. Chen and Teng (2016) highlight the importance of understanding perceptions and perspectives of visitors to coastal and marine locations to ensure acceptable, practical and sustainable management policies and practices (including considering carrying capacity). They argue that this is particularly crucial in the context of environmentally

vulnerable and sensitive beach tourism locations. Han et al. (2018) also stress the importance of carrying capacity, especially in urban beach contexts, to protect resources and the environment to promote green development. Martinis et al.'s (2019) study on the profiles and types of tourists that visit protected coastal areas in Zakynthos Island reveal how examining the perceptions of tourists contributes to the development of a strategic plan and the implementation of an adapted environmental policy.

Research assessing coastal and marine resources tend to focus on the natural resource base and littering/ waste on beaches. For example, Edgar et al. (2004) analysed ecological baseline data collected for key resource species within the Galapagos Marine Reserve. They highlight the importance of fishing restrictions and dealing with user bias to ensure the sustainability of specific species in the future. Kiessling et al. (2017) evaluate environmental awareness and action in dealing with coastal litter in Chile. Whitney et al. (2016) emphasise the importance of assessing the effectiveness and level of compliance of management measures and policies in coastal and marine locations. Ban et al. (2017) also highlight the importance of examining compliance in assessing the social and ecological effectiveness of measures in MPAs. Hockey and Branch (1997) decades ago developed a methodology for evaluating MPAs in South Africa which focused on three categories: biodiversity protection, fisheries management and human utilisation. They also used observations as a component of qualitative research for the evaluation which this study adopts. Needham and Szuster (2011) argue that the acceptance of tourism and recreation management strategies depends on situational factors including social, resource, and facility impacts. They identify several aspects to consider including facilities available, crowding, visibility of environmental impacts that undermine the quality of the beach experience and presence of litter. Their research reveals that there were high levels of support among users of coastal sites in Hawaii to restrict use, improve awareness and education, increase facilities and improve maintenance. Kitsiou et al. (2002) assert that coastal ecosystems are increasingly threatened by short-sighted management policies that focus on human activities rather than the systems that sustain them. They argue that the early assessment of the impacts of human activities on the quality of the environment in coastal areas is important for decision-making. They developed a methodology using a combination of multiple criteria choice methods and Geographical Information Systems (GIS) to undertake a multi-dimensional evaluation and ranking

of coastal areas in the northeastern part of the island of Rhodes in the Aegean Sea, Greece. Chen and Bau (2016) identify factors affecting beach environments and established a multi-criteria evaluation structure for tourist beaches in southern Taiwan. They noted four major dimensions: cleanliness of beach environments, safety, beach protection and management, and facilities and services.

The need to assess and monitor CMT sites and resources requires additional focus, particularly in the context of increased demands on these fragile ecosystems, as highlighted by Liu et al. (2019). This is particularly important since the deterioration of environmental quality undermines not only the resource base but CMT activities that promote socio-economic development in these locations. As Gössling et al. (2018) state, since a considerable share of tourism is 'sun, sand, and sea', the sector is highly dependent on the integrity of coastal resources including unpolluted beaches and waters. Several approaches exist to assess beach quality, including visitor perception surveys and observation checklists (Lucrezi and van der Walt, 2016) which this study uses. Dodds and Holmes (2019) note the importance of understanding visitor profiles, which is included in the visitor surveys. In terms of beach characteristics, important variables are levels of cleanliness (particularly absence of litter), signage and information displayed, safety, and facilities and services present (Dodds and Holmes, 2019; Qiang et al., 2020; Rodella et al., 2019). This study includes an examination of these aspects.

1.2. Motivation

CMT is critically important for regional economic growth and job creation in locations such as KwaZulu-Natal province with a coastline of more than 600 km and key sites including Durban's Golden Mile and the isiMangaliso Wetland Park, which is also a United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Site. There is increasing research on CMT which tends to examine the socio-economic impacts of this tourism sub-sector (Bob et al., 2018; Brouwer et al., 2017; Hosking et al., 2014; Oliveira et al., 2018) with most studies focusing on product/ activity specific studies such as shark cage diving and whale watching (Corbau et al., 2019; Du Preez et al., 2012; Mitra et al., 2019; Myeza et al., 2010; Tkaczynski and Rundle-Thiele, 2018; Trave et al., 2017). The importance of understanding pressures and demands on coastal and marine environments is increasingly recognised as noted by Barbier (2017), Dwyer

(2018), Liu et al. (2019), Papageorgiou (2016), Porter et al. (2018), Rogerson (2020) and Vaughan and Agardy (2020), which include increased visitation (especially to popular destinations), development demands such as residential and business purposes, climate change and conservation imperatives. This is not only because of the recreational opportunities that these locations provide as indicated by Rudianto et al. (2019), but also because of the range of ecosystem services provided including habitats for a range of diverse species, waste and climate regulation, carbon sequestration, shoreline stabilisation, flood and pollution control, food and resource provision for humans, and educational opportunities (Barbier, 2017; Chakraborty et al., 2020; Drius et al., 2019; Enriquez-Acevedo et al., 2018; Kobryn et al., 2018; Rodella et al., 2019). Examining the destination itself is critical since it influences visitor perceptions and satisfaction levels in the context of the environment being the main product that drives CMT (Carvache-Franco et al., 2019; Dodds and Holmes, 2019; Pueyo-Ros et al., 2018). Trave et al. (2017) argue for additional research on the impacts of CMT, specifically stating that it is unclear whether wildlife tourism is achieving its conservation objectives, or if the direct and indirect effects on the environment undermine its ecological benefits. This study provides a provincial level assessment, focusing on KwaZulu-Natal, of perceptions and use of CMT as well as undertaking an observation-based examination of the state of key CMT sites along the coastline.

Tourism is a major sector for the South African economy. Smith (2019), citing the World Travel and Tourism Council statistics, indicates that in 2018 travel and tourism in South Africa contributed 1.5 million jobs and R425.8 billion the economy (8.6% of all economic activities). In the South African context, CMT is associated with the promotion of Operation Phakisa, which is aimed at unlocking the potential of the blue economy (Operation Phakisa, 2014). The vision of Operation Phakisa is "by 2030 South Africa is the premier experience-based CMT destination in Africa and is renowned as a top CMT destination globally with a unique range of experiences for all visitors" (Maritime Cluster, 2015: 4). Operation Phakisa (2014) states that by 2033 South Africa's oceans have the capability of contributing approximately R129 177 billion to the country's Gross Domestic Product (GDP) with KwaZulu-Natal being a key coastal province. Several challenges have been identified by the Maritime Cluster (2015) in relation to Operation Phakisa which include the inadequate use of South Africa's coastal and marine assets, insufficient location-specific tourism products to meet current and future demand, lack of effective marketing

to promote some CMT destinations, lack of private sector investments to develop tourism products without the certainty of profitability, and underdeveloped and uncoordinated marine-related events and recreation activities. These factors reflect the importance of examining visitor demands and interests as well as alluding to the importance of CMT location environments.

Increasingly, research indicates that the state of the CMT location influences repeat visitation and future appeal given that word-of-mouth marketing is a key factor. Trave et al. (2017) assert that given the increasing popularity of marine tourism, assessment of environmental outcomes is critical to ensure the conservation of these habitats and the long-term sustainability of CMT. Ban et al. (2017) highlight the need for more empirically-based assessments of CMT sites and resources. In the South African context, there is limited research that assesses CMT locations. The study intends to contribute to this body of knowledge to better understand tourism and recreational trends and demands in CMT locations as well as correlate visitor perceptions with an observation assessment of specific sites based on selected criteria.

Vetrimurugan et al. (2019) assert that KwaZulu-Natal has some of the finest and most pristine beaches in the world. KwaZulu-Natal's CMT resources are central to the province's tourism product portfolio. Vetrimurugan et al. (2019) argue that KwaZulu-Natal's coastline development has been associated with tourism growth together with rapid urbanisation, industrialisation, and settlement of the human population. They indicate from an assessment of beach sediment samples that these developments are major sources of stressors that are impacting on the beach resource base. This will have substantial consequences for CMT, which is directly linked to the status and quality of beaches in any location. Thus, this study examines the state of CMT sites in KwaZulu-Natal and visitor perceptions of these locations. It is important to note that current research generally focuses on specific aspects, for example, visitor perceptions (usually in relation to debris and litter) or observations. Very few studies include both components and, in terms of the observation component, include various aspects as highlighted later. Furthermore, observations were undertaken during peak and off-peak periods, providing the basis for comparative analyses and ensuring that seasonality is considered. Thus, this study contributes to the body of knowledge in terms of the scope of the research and methodologically.

1.3. Aim and objectives

This study undertakes an assessment of visitor profiles, consumption patterns and perceptions as well as the state of 41 purposively selected CMT sites in KwaZulu-Natal province, South Africa.

The objectives of the study are to:

- Examine KwaZulu-Natal CMT site visitor profiles in relation to social (age, gender, education and population group), economic (income levels) and spatial (types of visitors and place of residence) attributes.
- Establish the different types of CMT and beach activities that visitors in KwaZulu-Natal participate in and would like to participate in.
- Assess the frequency of and reasons for visitation to CMT locations in KwaZulu-Natal.
- Examine visitor levels of satisfaction with and perceptions of CMT locations in KwaZulu-Natal.
- Assess the state of CMT locations in KwaZulu-Natal in relation to aspects such as safety and security, signage, natural resources, facilities and waste management.
- Forward recommendations to protect resources in CMT locations in KwaZulu-Natal and ensure sustainable tourism development.

1.4. Overview of methodological approach

This study uses primary and secondary data sources. The secondary data sources include academic publications, reports, policies and information from internet sites. Primary research included visitor surveys conducted as part of a larger study supported by the National Department of Tourism (NDT) to develop a framework to establish CMT visitors profile and perceptions as well as economic impacts in South Africa. In KwaZulu-Natal, 1200 face-to-face visitor surveys completed from September 2018 to January 2019 during peak/ vacation (960) and off-peak periods (240) at selected beach locations are used in this study. The research was undertaken at purposively selected CMT sites along the KwaZulu-Natal coastline from isiMangaliso Wetland Park/ St Lucia in the North to Port Edward in the South, covering 17 of the main CMT beach locations based on the presence of the key activities identified by the Maritime Cluster (2015). In addition to the visitor surveys, site observations were undertaken at selected CMT beach locations (including the beaches where the visitor surveys were conducted) during December 2019 to March 2020 during peak and off-peak periods using an observation schedule covering safety and security (presence of security, access control, shark nets, etc.), signage (and contents thereof), natural resources (restrictions in relation to fishing, alien invasive species, protected area status, etc.), facilities (parking, toilets and change rooms, restaurants, etc.) and waste management (litter, bins, recycling

and separation facilities, etc.). Ethical approval for the NDT study was granted by the University of KwaZulu-Natal Human and Social Sciences Ethics Committee. The observation schedule was submitted as an amendment since the initial ethical approval letter to conduct the surveys was still valid at the time of commencing this component of the research, and approved as well.

1.5. Conclusion

The present study, which focuses on CMT, is primarily motivated by addressing the gap in research that examines the impacts of visitation at CMT beach location sites. This is undertaken in the broader context of the growth in CMT as well as increased demands on these vulnerable yet ecologically important areas globally. The aim and objectives are presented in this Chapter, together with a brief description of the methodological approach adopted. This study combines visitor survey responses and on-site observations. The next Chapter presents the literature review, focusing on key themes pertinent to this study. Chapter Three presents the research design, including the background to the KwaZulu-Natal coastline, which is the case study, and the methodological approach employed. Data analysis and discussion are undertaken in Chapter Four. Chapter Five, as the concluding Chapter, presents a summary of the key findings, recommendations and concluding remarks.

CHAPTER TWO
LITERATURE REVIEW

2.1. Introduction

The literature review is undertaken thematically to contextualise and frame the study. The key sources of information for the review exercise included are academic publications, reports and policies. The Chapter specifically examines CMT as a sub-sector of tourism, covering definitional clarifications and trends as well as the framework that guides this study. This is followed by an examination of the main demands on CMT locations, including visitor expectations and needs, developmental pressures, climate change and conservation imperatives. Thereafter, research that assesses CMT sites and resources are reviewed, highlighting the different approaches used as well as key findings arising from these studies.

2.2. CMT as a sub-sector of tourism

Page and Connell (2020) state that tourism is a global phenomenon that is highly volatile. The current COVID-19 pandemic illustrates the sensitive nature of tourism, which has been one of the sectors most impacted by the travel and economic disruptions associated with measures to curb the spread of the virus. Page and Connell (2020) indicate that tourism has achieved rapid and substantial growth post the world wars. The main feature of tourism, they indicate, is travelling away from home for more than 24 hours for leisure/ holiday or business purposes. Discretionary spending, according to Page and Connell (2020), is another important characteristic of tourism. They also indicate that there are numerous types of tourism (including nature-based, CMT, events tourism, rural tourism, cruise tourism, cultural and heritage tourism, sports tourism, medical tourism, business tourism, etc.) and different types of tourists (domestic or international, long-haul or short-haul travellers, inbound or outbound, business or leisure, visiting friends and family, volunteering, etc.).

Orams and Lück (2014) indicate that nature-based tourism is a key contributor to the coastal economies of tropical marine locations globally. Papageorgiou (2016) asserts that coastal and marine locations are spaces that show continual growth in human activities and facilities, with CMT being the most prominent. Additionally, Papageorgiou (2016) notes that CMT is one of the

largest segments of the maritime economic sectors and the tourism industry. Papageorgiou (2016) further indicates that CMT is associated with controversy regarding environmental impacts and compatibilities with other human activities.

CMT is viewed as one the largest and oldest sectors which dates to the late 19th century in the United States of America with wealthier Americans visiting coastal locations for leisure and recreational purposes (Honey and Krantz, 2007). Decades ago, Orams (1999:13) viewed CMT as "recreational activities that involve travel away from one's place of residence and which have as their host or focus the marine environment (where the marine environment is defined as those waters which are saline and tide affected)". Yustika and Goni (2019) define a coastal area geographically as the land bordering the sea or having at least half of its territory within 10 km of the coast while maritime activities occur on or in coastal water.

2.2.1. What constitutes CMT?

A range of recreational activities is associated with CMT. According to Tegar and Gurning (2018), marine and coastal tourism are interconnected because of the water/ sea element. The International Coastal and Marine Tourism Society (ICMTS, nd) identifies several coastal and marine recreational activities which are presented in Table 2.1 below.

Table 2.1: Coastal and marine recreational activities (compiled from ICMTS, nd)

Coastal	Marine
Walking	Swimming
Beach swimming/ bathing	Surfing
Beach-combing	Wildlife watching
Sun-bathing	Scenic boat trips/ visits (including to islands)
Fishing	Ferry trips
Sand-dune surfing	Cruise ship visits (as passengers and local visitors)
Beach volleyball	Scuba diving
Horse-riding	Snorkelling
Tidal-pool exploration	Reef walking
Sand-castle building	Surf-ski paddling
Sand sculpting	Board-sailing (windsurfing)
Kite-flying	Kite-surfing
Land-yachting	Boat based fishing
Skim-boarding	Sailing
Radio-controlled boating	Yachting
Wildlife watching	Water-skiing
Shell-fish gathering	Wake-boarding
Picnic and barbecues	Scenic boat cruising
	Sea-kayaking
	Dragon-boat paddling
	Stand-up-paddle boarding,
	Coastal drives (including sea watching from viewpoints)
	Health therapy
	Visitor centres (aquaria, museums, heritage, etc.)
	Maritime museums
	Maritime-related events and festivals

Beach tourism, the focus of this study, includes a combination of CMT activities depending on the specific location and the amenities available. Dodds and Holmes (2019) state that visiting a beach is one of the most popular among all forms of tourism.

2.3. Conceptual framework

The study uses key components of the drivers, pressures, state, impact and response (DPSIR) model to frame the research as outlined by Mandić (2020) and Ruan et al. (2019). Ruan et al. (2019) state that the DPSIR model examines the interrelationship between people and the environment from a system perspective. Additionally, Mandić (2020) asserts that the DPSIR framework permits an analysis of local and global drivers of change to assess triple bottom line (social, economic and environmental) impacts and response implications. Rudianto et al. (2019) further indicate that this approach considers environmental management strategies within the

context of focusing on ecosystem services that reflect social goals, values, desires and benefits. Thus, a more holistic and comprehensive approach is adopted when examining interactions between people and the environment. Rudianto et al. (2019: 3) extends the DPSIR framework into a model reflecting drivers, pressures, state, ecosystem services and responses (DPSER) and summarises the key components, which are shown in Figure 2.1 below.

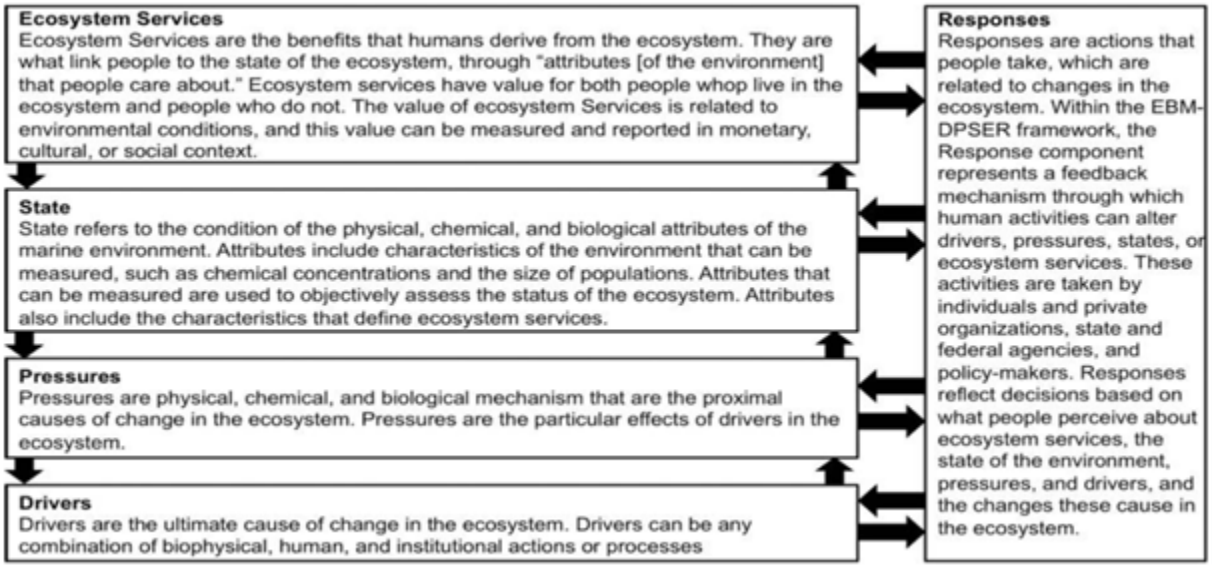

Figure 2.1: The DPSER model (Rudianto et al., 2019: 3)

The importance of the ecosystem services provided by coastal and marine locations are discussed in more detail later in the chapter. The state encapsulates the conditions of the flora, fauna and the services/ facilities/ infrastructure in specific locations. A key aspect of the state of an ecosystem is the social conditions and cultural economy which is evident in several studies in that local businesses benefit from CMT activities and that locals visit these locations for recreational and leisure purposes (Rudianto et al., 2019). The key pressures together with drivers (which are the key causes of change) are also examined in relation to internal and external demands that affect the ecosystem services in CMT locations. As Ruan et al. (2019) state, the rapid development of the tourism industry around the world has increased negative impacts on the ecological environment which require ecological security measures to ensure that resources that tourism depends on are sustainably managed and a healthy balance is maintained. Responses include how

the ecosystem itself and various stakeholders alter or adjust in reaction to changes (existing or potential). The key demands in CMT areas are discussed next.

2.4. Demands on CMT sites

Barbier (2017) states that marine ecosystems represent some of the most heavily exploited ecosystems throughout the world. Pertinent statistics provided by Barbier (2017: 507) include:

- Coastal zones make up just 4% of the earth's total land area and 11% of the world's oceans, yet they contain more than a third of the world's population and account for 90% of the catch from marine fisheries.
- Due to coastal development, population growth, pollution and other human activities, 50% of salt marshes, 35% of mangroves, 30% of coral reefs, and 29% of seagrasses have already been lost or degraded worldwide.
- As much as 89% of oyster reefs may also have been lost globally.
- Overfishing has been a persistent and growing problem in marine environments, and loss of fisheries is also linked to declining water quality through the increasing occurrence of harmful algal blooms, offshore pollution and oxygen depletion (hypoxia).

Barbier (2017) asserts that human activities are threatening many of the world's remaining marine ecosystems and the benefits they provide, which include the provision of goods (for example, fish harvests and water), services (for example, recreation and tourism, transportation and environmental protection) and cultural benefits (for example, religious significance and bequest for future generations.

Gedik and Mugan-Ertugral (2019: 863) assert that "when tourism creates negative effects on the environment, it also puts its own existence in danger". Myles (2017) states that the world's oceans are increasingly under pressure from rising sea temperatures, ocean acidification, biodiversity and habitat loss, overfishing and pollution. Needham and Szuster (2011) assert that the increased CMT demand makes marine environments important to provide open spaces and opportunities for tourism, leisure and recreational activities. As indicated in the introductory chapter, while the benefits of CMT are noted by numerous researchers such as Bob et al. (2018), Brouwer et al. (2017), Hosking et al. (2014) and Rogerson (2020), Joseph (2017) cautions that the increasing pressures and demands on CMT locations and environments as a result of growing numbers of residents in these areas as well as tourism and other business (and residential) expansion can undermine the integrity of the resources in these areas. Philips et al. (2019) note that continued

anthropogenic and natural stressors in beach and ocean environments are causing damage to these areas which take decades to restore. Oh et al. (2010) assert that there is an increasing demand for beach locations and amenities for a range of activities (including for development, tourism, conservation, recreational and leisure purposes. Davis (1996) defines the beach as a marine environment that is a meeting place between land and ocean which extends from the low tide water line landward across the unvegetated sediment to the start vegetation or a geomorphic feature (such as a dune, a bedrock or human-constructed seawall) in the landward direction. Chen and Teng (2016: 213) state that beaches vary in type:

> Beaches have diverse types. Based on physical dimensions, they could be covering a spectrum from dissipative to reflective; natural or artificial; pocket, linear or logarithmic spiral shape; consisting of a sediment of mud, sands, gravels, cobbles, and boulders.

Drius et al. (2019) assert that coastal sand dunes, where beach CMT sites are located which is the focus of this study, are complex transitional systems hosting high levels of biodiversity and essential benefits to society which include diverse species of animal and plant life, unique habitats and ecosystems, groundwater stored in dunes, water purification, coastal defence, capacity to protect from wind and aerosols, and regulation of climate at local and global scales. These characteristics contribute to these locations being valuable and sought after leisure, recreational and tourism locations. Furthermore, as the Figure below indicates, the range of threats and demands on coastal and marine resources (specifically ecosystem services provisioning, human activities and coastal tourism) require trade-offs. Chakraborty et al. (2020) note that ecosystem services are essential for approximately 28% of the global population who live in coastal areas, many of whom are poor and marginalised residents.

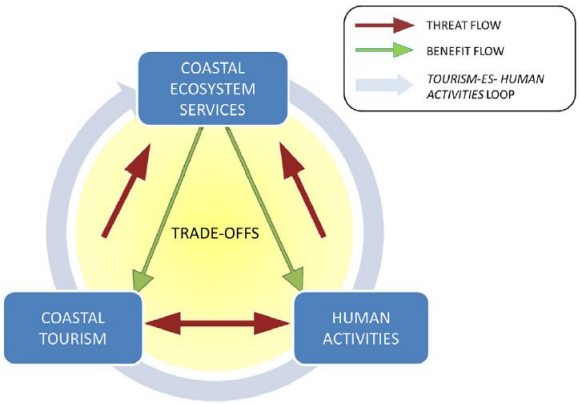

Figure 2.2: Coastal resources threats, benefits and trade-offs (Drius et al., 2019: 1302)

Drius et al. (2019: 1140) indicate that "despite their high biodiversity value and numerous benefits, coastal sand dunes are among the most threatened habitats globally". This section examines some of the key demands in CMT locations. Gössling et al. (2018) argue that coastal and marine resources are impacted on by external and tourism-related pressures such as land conversion and industrial developments, water pollution, loss of mangroves, the introduction of invasive species, and overuse of resources. Oh et al. (2010) specifically state that these often competing demands makes it important to balance these multiple interests, demands and expectations. From a sustainability perspective, this becomes critical to reduce disruptions and protect coastal and marine resources to ensure that these habitats remain intact and that the different stakeholder experiences can be enhanced. Leijzer and Denman (2014) note that tourism is increasingly being recognised as a driver for sustainability. The sustainability consideration is referred to by Cañavate et al. (2019) as blue tourism which they define as tourism that develops in coastal and maritime areas in line with the principles of blue growth that integrates the preservation of the natural environment and respecting marine habitats as the sources of wealth. They argue that blue tourism embraces sustainable tourism. This is reinforced by Lillebø et al. (2017) who state that blue growth requires a balance between the social, economic and environmental aspects in relation to the services of the marine ecosystem.

Joseph's (2017) sustainable coastal tourism model (Figure 2.1) that was developed from the United Nations World Trade Organisation's (UNWTO) guidebook on the indicators of sustainable development of tourist destinations encapsulates the key components of sustainability (economic, environmental, socio-cultural and governance dimensions) provides a useful framework that reveals multiple and interrelated aspects.

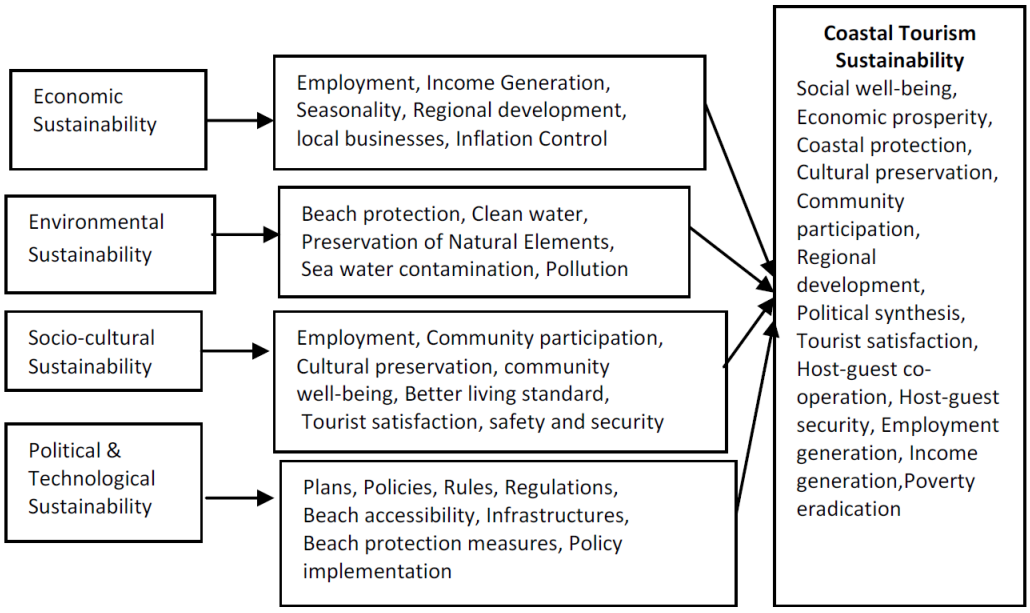

Figure 2.3: Sustainable coastal tourism model (Joseph, 2017: 53)

2.4.1. CMT visitors

Biggs et al. (2015) reveal that CMT associated with nature-based tourism contributes to the economy of coastal and marine locations which is linked to attracting visitors to these areas. The Centre for Industrial Studies (2008) indicates that among tourist destinations worldwide, tourists prefer coastal areas. Yustika and Goni (2019) state that CMT can threaten coastal and marine environments because of infrastructure demands (especially damage during construction) and pressure from tourism numbers that generate different forms of waste and results in physical environmental damage.

Research identifies key activities that attract visitors to coastal beach locations. Tourist attractions relate directly to beach-related activities and specific nature-based coastal and marine events.

Kruger and Saayman (2017: 605) define these natural events as natural spectacles not organised by humans that have spatial (occurring in a specific place) and temporal (occurring at a specific time) dimensions which attract visitors and include:

> Earth (geological) events (such as a volcanic eruption), sky (space) events (such as the Northern Lights), animal (fauna) events (such as the great wildebeest migration in the Serengeti), bird events (such as the arrival of migratory birds in the Okavango Delta), aquatic (marine) events (such as salmon and sardine runs), and plant (flora) events (such as the wildflower displays in Namaqualand).

Selected studies examining CMT attractions and events are summarised in this section. Clark (2015), for example, shows that in Hawaii**,** more than 80% of the 7 million annual visitors to the islands take part in activities based on CMT with the main ones being scuba diving and snorkelling. Cinner (2014) states that main beach tourist attractions in CMT locations that have coral reefs are diving and snorkelling as well as the viewing of sharks, turtles, manta rays and seals. Zurub et al. (2015) show that CMT is the most significant sub-sector in Europe. Higham et al.'s (2016) research focused on whale watching which they argue is one of the fastest-growing CMT activities globally which is also perceived positively since it is regarded as non-consumptive and non-extractive activity focusing on viewing marine species.

Catalan et al. (2010) examined the socio-economic impacts of whale watching in Northern Patagonia, Chile, as a special interest activity. They show that whale watching has economic benefits and is increasing annually. They also note that whale watching activities are directly linked to the Gulf of Corcovado being one of the most productive and diverse marine environments in South America and globally. Thus, Catalan et al. (2010) illustrate that the natural resource base is the source for opportunities to promote specific coastal and marine activities such as whale watching. In Northern Patagonia they specifically show how local communities together with fisherman associations organise tours for watching whales, dolphins and penguins. Catalan et al. (2010) also argue that special interest tourism can contribute as a key driver to conserve marine species while concurrently profiling the region as a world-class whale watching destination which will have economic benefits. However, to ensure long-term sustainability, they emphasise the importance of developing quality standards and best practices at the local level of operation. Catalan et al. (2010) reveal that more research and systemised information are required to better

understand tourist profiles in relation to CMT activities or number of visitors demanding whale watching in the area as well as understanding tourist satisfaction levels. This is a gap in the research that this study addresses.

Scholtz et al. (2015) indicate the importance of visitor satisfaction with destination attributes. They assert that the link between visitor satisfaction and destination attributes, facilities, services, and amenities is well documented in tourism literature and satisfaction influences length of stay that has socio-economic impacts. Alegre and Cladera (2009) state that positive tourist experiences with service levels and products in specific destinations lead to repeat visits while negative experiences result in tourists not returning and may dissuade others as well from visiting. Scholtz et al. (2015) show how the length of stay at coastal parks studied can be increased and sustained to contribute positively to both conservation efforts and tourism in the area.

Venables et al. (2016) also undertook research on manta rays, an iconic megafauna species that is a major drawcard for wildlife tourism industries. They state that this species was internationally threatened and population declines have been reported in various locations worldwide. They also argue that economic valuation of these types of tourism activities can provide an incentive for the protection of species and natural habitats through the creation of MPAs and the restriction of harvesting or trade. Corbau et al. (2019) state that MPAs are declared to protect biological and environmental values. Otrachshenko and Bosello (2017) examine the impact of marine ecosystem quality on inbound coastal tourism in the Baltic, North Sea, and Mediterranean countries. They found that the presence of MPAs impacted considerably on inbound coastal tourism, underscoring the importance of marine ecosystem quality for inbound coastal tourism. Site-specific estimates, Venables et al. (2016) argue, are essential in developing countries to promote the non-consumptive use of resources and develop appropriate management strategies. The study also indicates that tourists and stakeholders supported the need for increased protection of marine species and their environment, specifically the implementation of MPAs along the Inhambane Province coast. Corbau et al. (2019) note that MPAs face the need to balance preservation and recreational uses.

Oliveira et al. (2018) examine the growth in the Cape Verdean Sal Island (known as Cape Verde) which has resulted in increased public and private sector investments to ensure and promote the island's touristic attractiveness. Their study focuses specifically on the impacts of this growth on the diving industry, which is one of the largest CMT attractions for tourists. Oliveira et al. (2018) developed an online survey to establish the profile of the diver tourists as well as promote environmental education, conservation and biodiversity awareness among divers. A total of 347 divers responded to the online survey, and the results indicate that divers strongly support the use of new tools for a better understanding of diving site biodiversity and that the diving industry can play an important role in the enhancement of biodiversity awareness.

Jonas et al. (2019) and Seymour (2012) note that South Africa's approximately 3 500 km coastline houses major marine tourism destinations and attractions with potential to grow. They also indicate that some of South Africa's main positive CMT characteristics include a mild climate, stunning sceneries, and a variety of attractions and products.

Locals and day-trippers also participate in the attractions discussed above but are mainly attracted to beach locations for mainly recreational activities including walking on the beach, sunbathing, swimming, fishing and surfing (Burgin and Hardiman, 2011; Rudianto et al., 2019). These activities generate waste. Qiang et al. (2020) note that while there is increasing research on environmental pollution caused by CMT (and tourism activities more generally), fewer studies examine the loss of tourism revenues as a result of environmental pollution. Qiang et al. (2020) further indicate that while tourism managers publicise environmental quality to improve brands and marketing, knowledge of the economic impacts of poor environmental quality is limited.

Visitor experiences, Oh et al. (2007) indicate, have three phases: anticipation (prior to a trip), realisation (during the trip) and recollection (after the trip). Kruger et al. (2018: 36) assert that common ways to segment markets are to use typologies that can include the following aspects:

- Geographic (covering, for example, city, region, and country of origin)
- Demographic (age, gender, marital status, family life cycle, income, occupation, education and nationality)
- Psychographic (motives, attitudes, interests, opinions, and lifestyle)
- Behavioural (product usage, product loyalty, attitude to the product and awareness of the product)

Kruger et al. (2018) further developed a useful experience-based typology of visitors based on research examining South African whale watching festival (the Hermanus Whale Festival) attendees which can be applicable to beachgoers generally. They identified three segments that relate to a memorable experience:

- Abundant experience seekers: value specific aspects related mostly to quantity dimensions, for example, pleasant physical setting and quantity (such as number of whales seen)
- Convenience experience seekers: value specific aspects surrounding comfort and convenience as well as information, ambience, and visitor control.
- Comprehensive experience seekers: value the experience in its entirety, that is, a combination of abundant and convenient experiences.

Kruger et al. (2018) note this type of visitor segmentation is an important research tool to examine visitor profiles to better understand and identify viable target markets. These visitor profiles can also be useful to assess current and future demands on CMT resources. It can also identify patterns of concern. For example, Kruger et al.'s (2018) study showed that whale watching for most visitors was the secondary attraction while the entertainment activities associated with the Hermanus Whale Festival was the primary motivation. They note that this is of concern since the whale migration is branded as the main attraction for this eco-marine festival. They caution that many of these eco-marine festivals face the risk of becoming mass tourist attractions which, if not properly managed, can result in the natural environment being neglected and undermined. Kruger et al. (2018) further recommend that tourist events organised around a natural phenomenon should underscore the natural occurrence primarily and the entertainment features should be supplementary.

The destination itself is critically important since it influences visitor satisfaction and experiences as indicated by Carvache-Franco et al. (2019), Dodds and Holmes (2019), Jarvis et al. (2016), Philips et al. (2019) and Pueyo-Ros et al. (2018). This, they assert, in turn, affects whether they will recommend the destination to others, how much of money they spend at the destination and whether they will visit again. Jarvis et al. (2016) note, however, that the tourism sector is not only responsible for ensuring visitor satisfaction as CMT locations but other CMT stakeholders and industry players (for example, private and public sector agencies responsible for services and infrastructure including water and sanitation, waste management, electricity/ energy provision,

safety and security, and infrastructural provisions such as transportation and internet connectivity) influence trip satisfaction.

Pueyo-Ros et al. (2018) specifically look at CMT in coastal wetlands which they indicate are often neglected in research where there tends to be a focus on sandy beaches. Their study investigates the uses and preferences of visitors in wetland areas. Their study reveals that visitors mostly participated in recreational activities (such as cycling, running and walking) with the main positive aspects of these sites being identified as landscape quality and degree of naturalness. The results again indicate the importance of the environment in influencing decisions to visit and experiences while visiting. They specifically note that although most visitors did not indicate that facilities were a positive component of their experience, they were critical when facility maintenance was substandard and associated negative features of a visit with missing or broken signage or dirty areas.

Ahmed and Nadasen (2013) indicate that the interlinks between coastal ecosystems by both public and private entities are poorly understood, which has led to short-sighted tourist investments that neglect to consider beach capacity or resource constraints. This particularly problematic when tourism imperatives elevate economic gains above that of social and ecological consequences. Ahmed and Nadasen (2013) further note that the potential for increased ecotourism that targets high-income visitors is huge along the KwaZulu-Natal coastline, which is relatively undeveloped. The challenge, they argue, is to achieve optimal relationships between coastal uses and protection of coastal ecosystems.

Lucrezi and van der Walt (2016) indicate that the main factors that influence visitation (and thereafter, repeat visitation) at a specific location are recreational activities available, levels of crowdedness, safety and security, cleanliness, water quality, climate and distance from place of residence. They focus on sandy beaches which they assert represent typical venues for recreation and tourism worldwide, as well as part of the lifestyle and identity of coastal communities. Snider et al. (2015) add that amenities at the CMT destinations also affect visitor experience and are predictors of coastal tourism. They specifically show beach parking access, availability and conditions influence visitor experiences and visitation patterns. Atzori et al. (2018) state that

tourists (as a sub-set of visitors) to coastal and marine locations are influenced by a number of factors including perceptions of beach comfort which influences which destinations tourists choose and their travel preferences.

Dicken and Hosking (2009) indicate how tourism expectations and demand for specific experiences to view or interact with marine animals in their natural environment can contribute to disruptions in natural coastal and marine ecosystems and species. Dicken and Hosking (2009) specifically show that almost all of the tiger shark divers they interviewed supported the use of chumming to have a closer tiger shark experience.

2.4.2. Developmental demands

Porter et al. (2018) state that the coast is an increasingly sought-after area with nearly half of the global human population residing in coastal zones. Eagleton and du Plessis (2019) state that worldwide 3 billion people live close to coastal zones which places substantial demands for resources in these areas. Dwyer (2018: 25) indicates that continued population growth and related "pressures on the ocean's natural assets inevitably will increase in the coming years as world population growth, economic growth, and increased international trade generate increasing demands for marine sources of food, energy, minerals, and leisure pursuits". Similar sentiments are expressed by Potgieter (2018) who states that population growth and urbanisation are changing coastal environments, together with increased demand for fish protein, energy and minerals, and seaborne trade. These pressures, as Kurniawan et al. (2016) show, are more acute in small island economies where increased development and land use change creates vulnerability and unsustainability. Porter et al. (2018) further assert that research shows that in developed nations coastal real estate is extremely expensive (and this is also the case in high income coastal locations in developing countries as well). Also, they note that generally in lesser developed regions and more remote, rural areas, coastal life is associated with primary livelihood activities and coastal and marine staple food sources. Porter et al. (2015) further note that these inhabitants face growing challenges associated with dependence on coastal and marine resources that are in decline, especially the reduction in fisheries for sustenance and income. In these contexts, they argue that researchers have advocated for the potential of tourism development to contribute to these declining economies. Porter et al. (2015: 169) specifically state that "access to a tourism economy

by fishing households has the capability to provide a valuable supplemental economic activity and to contribute to improved livelihoods". In the South African context, Glavovic and Boonzaier (2007) advocate for the need to better understand coastal livelihoods and challenges so that priority interventions can be identified for improving livelihood prospects.

Liu et al. (2019) state that accelerated development has increased in beach locations. Mir-Gual et al. (2015) note that this is particularly acute in more urban locations where urban development pressures are evident and where coastal environments are managed mainly for users/ bathers which include unsuitable management practices such as artificial beaches as well as increased development of accommodation and facilities for tourists. Ahmed and Nadasen (2013) indicate that the geographic concentration of coastal tourism and its associated development impacts are strongly associated with proximity to the littoral/ coastal zone. Lucrezi and van der Walt (2016) state that overexploitation and unsustainable demands are more severe in urban areas where beach management requires balancing the needs of different users and obligations to protect beach functions, including conservation imperatives. Leijzer and Denman (2014) indicate that many coastal habitats characterised by rich biodiversity have been on a decline as a result of pressure from development and activity in these locations.

Cooper and Jackson (2020: 185) outline the key impacts of human activities on physical coastal systems as:

- Alteration of hydrodynamics by coastal structures onshore and offshore.
- Alteration of accommodation space/ surrounding geological framework by the construction of harbours, groins and seawalls)
- Changes in sediment supply (removal/ addition) by damming rivers, sand extraction, dredging and beach replenishment.
- Direct impact on existing coastal systems by urbanisation, land claims and construction.
- Impacts that constrain the coast's future ability to adjust to sea-level change and future storms, for example, roads, buildings or other impediments.

Vetrimurugan et al. (2019) assessed beach sediment samples and showed that developments in CMT locations are sources of stressors negatively impacting on the quality of beach resources. Furthermore, the impacts of development on beaches are indicated by Lucrezi et al. (2016) who argue that low abundance and richness of vegetation and wildlife are normally associated with beaches that are urbanised and used for recreation with habitat removal, development activities,

trampling and disturbances being the main drivers of reduced dune vegetation cover and beach quality. They further indicate that beach quality is further compromised as a result of beach litter and inadequate/ inappropriate waste management practices.

Schuhmann et al. (2019) show how the improper management of coastal development and inland watersheds in Barbados can decrease seawater quality and adversely impact marine life, human health, and economic growth. The specific activities they identify are agricultural runoff and improper sewage management. They assert that water quality is critical for island and coastal communities dependent on coastal tourism and these activities, if inadequately managed, can undermine water quality.

Plieninger et al. (2018) identify and assess the potential for conflicts between landscape values and development preferences on the Faroe Islands, North Atlantic ocean. They adopt a qualitative approach that examines four narratives which focus on human-nature relationships: "a great appreciation for wildlife and landforms, for peaceful and undisturbed ecosystems, for open access to land and sea, and for people being part of nature as major themes" (Plieninger et al., 2018: 162). They found that there is substantial potential for land-use related conflicts associated with tourism competing with other development-orientated activities (for example, fish farming/ processing and renewable energy) which are deemed to be important by local communities. They also found that while local communities understood the importance of tourism and other new economic opportunities to create jobs and wealth, they expressed concern with the potential negative impacts on the natural environment and social relations, especially if these developments are not well governed. Plieninger et al.'s (2018) study reveal potential conflict areas in relation to development demands (including tourism needs) in CMT locations. They conclude that it is imperative to plan for multiple landscape values and preferences to manage the potential for trade-offs linked to different types of development that are influenced by several pressures and drivers of change. Similar sentiments are expressed by Munro et al. (2019), who indicate that multiple stakeholders in CMT locations have potentially conflicting values as well as needs and development priorities that need to be managed. Myles (2017) notes more generally that user conflicts around ocean resources and activities are on the rise.

Deterioration of the natural resource base in coastal locations will impact on the quality of these areas and thereby impact on CMT in the future. Pollutants are important to consider as well. The increase in demand and use of coastal and marine resources together with upstream activities have resulted in a substantial increase in pollutants. According to the UN (2017), some of the main marine pollutants are:

- Most pollution in seas and oceans (80%) come from land-based activities from fertilisers, manure, wastewater (including treated and untreated sewage) and other waste generated by human activities.
- 80% of all litter in oceans is plastic, with more than 8 million tonnes of plastic entering the oceans each year which equates to dumping a garbage truck of plastic every minute.
- Approximately 51 trillion microplastic particles litter oceans and seas, which seriously threaten marine wildlife.
- Single use plastic bottles, bags and cups will make up more plastic mass than fish in the oceans by 2050
- Abandoned, lost or otherwise discarded fishing gear in the oceans makes up around 10% (640 000 tonnes) of all marine litter.
- Oil spills from oil tankers, ocean drilling and leaking motors.

The UN (2017) further indicates that marine debris and pollution is harming more than 800 species, with 40% of marine mammals and 44% of seabird species affected by marine debris ingestion. Additionally, fishing gear debris traps and kills fish, seabirds, turtles and marine mammals (UN, 2017). Overall, the UN (2017) asserts that pollution is contributing to the loss of biodiversity, including declines in reefs due to coral bleaching (with projections all coral reefs will be threatened by 2050 from the current 60%), and loss of mangroves (with 20% lost from 1980).

Sánchez-Quiles and Tovar-Sánchez (2015) indicate that the growth of populations in coastal areas and tourism in these locations are likely to have a range of environmental consequences. They specifically show how the increase in the use of sunscreens and cosmetics with organic and inorganic Ultra-Violet (UV) filters in their formulation will make coastal regions worldwide susceptible to the impact of these cosmetics. They note that these pollutants reach the marine environment either directly during participation in water recreational activities and/ or indirectly from wastewater treatment plant effluents. They further state that the toxicity of organic and inorganic UV filters have negative impacts for aquatic organisms, specifically inhibiting growth in marine phytoplankton and bio-accumulating in the food webs. Sánchez-Quiles and Tovar-

Sánchez (2015) highlight the potential risk that the increasing use of these cosmetics would have in coastal marine areas.

2.4.3. Climate change

The increase in visitor demand and consumption of coastal and marine resources for development purposes has raised concerns about environmental damage and degradation. This is exacerbated in the context of climate change considerations as indicated by Clemente et al. (2020) and Moreno and Amelung (2009). Meyer-Arendt (2018) note that research relating to the environmental aspects of coastal tourism will grow, especially with global warming and sea-level rise. Lithgow et al. (2019) indicate that coastal areas are specifically vulnerable to climate changes. Clemente et al. (2020) note that extreme weather events associated with climate change have major impacts on tourism and tourist experiences.

Weatherdon et al. (2016: 48) state:

> The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) states that climate change and ocean acidification are altering the oceans at a rate that is unprecedented compared with the recent past, leading to multifaceted impacts on marine ecosystems, associated goods and services, and human societies.

They further indicate that the tourism sector is sensitive to both gradual changes in climatic and oceanic conditions, and extreme and abrupt weather events. Moreno and Amelung (2009) indicate that coastal and marine recreation (including tourism) is dependent on attractive environments and suitable weather conditions, both of which are negatively impacted by climate change. They also assert that climate change is likely to pose threats to certain tourism activities. Weatherdon et al. (2016) and Wong et al. (2014) state that, specifically, loss of beaches through coastal erosion, reduction of water supplies and ocean acidification are impacts associated with climate change that will have the most significant impacts on tourism. Wong et al. (2014) further state that additional research is required to explore climate-related impacts on tourism.

Pandy and Rogerson (2018) assert that tourism research generally acknowledges the significant and potential ramifications of climate change on the sector, but it is not considered as pressing an

issue as the impact of the 2008 global economic crisis which continues. They indicate that in the South African context, the national government is seeking to enact tourism and climate-based policies, but the implementation issues in relation to capacity issues at the local government level and commitment of key stakeholders have not been addressed. Their research reveals that climate change poses threats to biodiversity and the key asset base for CMT. Likewise, Ahmed and Nadasen (2013) argue that inadequately understanding the impacts of CMT can contribute to a loss of ecosystem services which damages the resilience of coastlines, making them vulnerable to natural and climate-related risks. Similarly, Islam and Shamsuddoha (2018) and Rudianto et al. (2019) state that coastal zones play an important role in providing various valuable ecosystem services which are being threatened due to these areas being sensitive and vulnerable to environmental changes as a result of human overpopulation and interactions between land and ocean systems. The main ecosystem services that marine and coastal environments provide are shoreline stabilisation and erosion control, carbon sequestration, flood control, pollution control, storm protection, wild plant and animal resources (including fish harvests and other food sources), raw materials, breeding and nursery habitats, genetic material, water, scientific and educational opportunities, tourism, and transportation (Barbier, 2017; Kobryn et al., 2018). Kobryn et al. (2018) extend the concept of ecosystem services to include cultural ecosystem services, which they argue is critical for effective marine spatial planning. They state that cultural benefits include recreational and leisure, therapeutic, educational and cognitive, heritage, spiritual, symbolic and aesthetic aspects.

Atzori et al. (2018) used a quantitative survey to ascertain the responses of a hypothetical scenario of changed climatic conditions among 432 tourists who had previously visited Florida. They found that the presence of ample sunshine and factors related to beach comfort were the key reasons that tourists used to choose a destination. The results reveal that when presented with a scenario where beaches disappear and tropical diseases become more widespread (key impacts of climate change), the majority of respondents indicated that they would choose a different destination. However, Atzori et al.'s (2018) study shows that respondents would reconsider their intentions if adaptation measures such as reduced prices, coastal habitat conservation and measures to protect beaches from erosion and coastal areas from inundation were in place. Their findings, therefore, support

research that underscores the importance of sustainable and effective management practices to address CMT stressors, including climate change.

Gössling et al. (2018) state that climate change is exacerbating pressures and stressors in coastal marine environments through sea-level rise, changing rainfall patterns as well as higher water temperatures linked to coral bleaching and algal blooms which affect the viability of coastal tourism destinations. They assert that in this context, the management of coastal ecosystems for tourism becomes paramount. Gössling et al. (2018: 773) caution, however, that although several management tools exist:

> …there is evidence that coastal governance is limited and hampered by economic interests and unequal power relations. Considerable political effort will be needed for tourism in coastal zones to become more sustainable and to adapt to on-going environmental change.

The governance aspect is also important given, as argued by Ariza et al. (2014) and Ruckelshaus et al. (2013), that the tourism sector has several stakeholders and often compete with other sectors such as fisheries and trade-offs are expected, especially in areas that are sensitive to climate change. Trade-offs are also noted by Schuhmann et al. (2019) between coastal and marine quality and the economic returns from tourism. Karnauskaitė et al. (2019) illustrate the value of using an indicator-based sustainability assessment tool to identify potential conflicts and raise discussions about sustainable development between stakeholders and decision-makers, thereby supporting the decision-making process. Ariza et al. (2014) assert that conflicts between beach development, ecological preservation, and social traditions have occurred in many coastal areas globally. Additionally, Wooldridge and Adams (2020) state that while ecological health (they focus on estuaries) is important in environmental management planning, socio-economic issues facing local communities are paramount. Furthermore, as Scott (2014) indicates, adaptive capacity is key, and historically, the tourism industry has exhibited high adaptive capacity in response to shocks such as financial crises, natural disasters and disease, which suggests the capacity to respond to future climate-induced variability through dynamic adaptation. Meyer-Arendt (2018) asserts that more attention is needed to assess the impacts of sea-level rise upon coastal tourism destinations, responses to sea-level rise at various administrative levels to examine governance issues, the vulnerability of visitors (including tourists) and residents to encroaching waters and increased

storm frequency, and climate change coastal management techniques and adaption strategies in tourist destinations.

Walker (2018) asserts that if ocean development in South Africa is badly planned and not well managed, there is likely to be irreparable damage to ocean ecosystems. Walker (2018: 6) further states:

> If oceans are to be the site of extractive industries and practices, then these should only occur in sustainable ways, without sacrificing environmental security in the quest to achieve accelerated economic growth. Attempts to reconcile the growing interest in exploiting ocean resources (oceans economies) with the worldwide need to ensure the protection of oceans and their sustainable development (blue economies) led to the welcome inclusion of an oceanic Sustainable Development Goal (SDG) as part of the United Nations 2030 Agenda.

Specifically, SDG 14 commits countries to conserve and sustainably use the oceans, seas and marine resources for sustainable development with key targets including reducing pollution, decreasing unsustainable fishing practices and increasing protective and conservation measures (UN, 2020). A key response to these environmental stressors is conservation efforts aimed at managing and protecting the natural resource base, and is discussed next.

2.4.4. Conservation imperatives

Bentz et al. (2016) note that marine wildlife tourism has the potential to provide benefits for local communities and conservation, especially if managed properly. This applies more generally to CMT. Papageorgiou (2016: 45) asserts that CMT "not only represent the largest and constantly growing segment of the tourism industry, but also among the most important (and fastest growing) economic activities taking place at the sea". Papageorgiou (2016) states that to maintain the environmental conditions that facilitate CMT economic activities, planning procedures need to be in place to minimise impacts on the natural ecosystem and on the local economy. Papageorgiou (2016) and Vaughan and Agardy (2020) state that Marine Spatial Planning is central to maintaining the environmental conditions which underpin CMT, which includes providing spatial regulation, allocating human uses (to achieve synergies between different activities and demands to avoid conflicts) and organising human activities in locations experiencing increased pressure and in

vulnerable environments. Marine Spatial Planning which, according to Papageorgiou (2016), is considered to be an effective tool in regulating current and potential user-user and user-environment conflicts in fragile coastal and marine spaces, thereby contributing to the sustainability of both the economy and the natural ecosystem. Vaughan and Agardy (2020) argue that using marine spatial planning requires recognising existing uses and identifying how these uses may be affected by climate change, economic development, marine users' social licence to operate and governance considerations.

The importance of spatial planning is also highlighted by Munro et al. (2019). They specifically state that Marine Spatial Planning is gaining prominence as a tool for managing multiple uses and users (associated with the diversity of values and preferences) in coastal and marine environments. Additionally, they assert that Marine Spatial Planning facilitates identifying potential synergies and conflicts, which can be managed. Munro et al. (2019) argue that coastal and marine planning has generally ignored social data (including those of visitors), which can result in negative socio-economic and environmental outcomes as well as conflicts. They advocate for more research that adopts "a holistic approach that considers both tangible and intangible socio-spatial data", which "is likely to foster a more nuanced appreciation of what is valued in the landscape and why, providing greater insights to support sustainable long-term planning and environmental health (Munro et al., 2019: 502-503). This approach, they state, influences tourism development to follow a path that ensures visitor satisfaction as well as protects environmental and cultural assets that tourism depends on. This study addresses this gap in knowledge by combining social data (from the visitor surveys) with spatial data (from the beach observation data).

Stewart (1993) decades ago argued that marine conservation regimes could be used for managing and controlling tourism in coastal and marine areas since tourism has both positive and negative effects on natural environments. Stewart (1993) states that using marine conservation regimes as management tools enables governments to choose a combination of preservation and development principles that reflects an area's capacity for tourism and the preferences of the nearby communities. Biggs et al. (2015) state that nature-based tourism associated with marine and coastal activities provides incentives and resources for the protection and conservation of these pristine regions.

Ban et al. (2017), Laffoley et al. (2019), Papageorgiou (2016), Sowman and Sunde (2018), Tonge et al. (2015) and Vaughan and Agardy (2020) indicate that there has been an increase in the number of MPAs globally to protect and conserve global ocean ecosystems, including coastal environments. This is as a result of sustainability concerns given the increasing demands on these biodiversity resources in these areas. Balmford et al. (2015) highlight the importance of protected areas globally to conserve natural resources. In relation to coastal and marine areas specifically, Spalding et al. (2014: 55) state that only less than 2.3% of the Earth's oceans are protected, although oceans make up more than 70% of the Earth's surface area. They also assert that oceans resources play an important role in helping to regulate climate as well as provide food, recreational services and tourism activities. Similarly, Laffoley et al. (2019) indicate that the main critical services provided by healthy marine ecosystem include food security, fisheries management and aquaculture, tourism and recreation, energy development, and shipping and marine transportation. These services, they argue, are important to ensure the carbon storage capacity of oceans ('blue carbon' that is important to mitigate climate change impacts) and contributions to the global economy.

MPAs are defined by Dixon and Sherman (1990: 8) as "any area of the marine environment that has been granted special status to encourage lasting protection of the natural or cultural resources within that specific region". Agardy et al. (2003: 353) assert that the most well known and established definition of MPAs is that used by International Union for Conservation of Nature (IUCN): "any area of inter-tidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical, or cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment". In the South African context, Cele and Ndlovu (2018) illustrate that increased pressure on marine resources gave rise to the declaration of MPAs to protect and manage coastal and marine resources. Page and Connell (2020) state that MPAs are water-based reserves with protective policies for marine life. Tonge et al. (2015) indicate that protected areas generally and marine parks specifically are popular tourist destinations. Cele and Ndlovu (2018) caution, however, that MPAs as management mechanisms present their own challenges emanating from insufficient knowledge among government officials,

weak law enforcement and compliance, lack of transparency and poor communication between affected stakeholders.

Sink (2016) asserts that the value of well-managed MPAs to safeguard entire ecosystems and support resource recovery is generally accepted. Additionally, Laffoley et al. (2019) state that MPAs play an important role by increasing ocean resilience to climate change impacts, protecting important global fisheries, as part of an effective ocean governance system, and by reducing the cumulative impacts and pressures on our oceans. Sink (2016) specifically indicates the importance of MPAs in South Africa arguing that these locations provide opportunities for marine ecotourism including activities such as bird and marine mammal watching, shark tourism, snorkelling and scuba diving. Furthermore, Sink (2016) states that Operation Phakisa also notes the importance of MPAs to increase benefits through marine tourism assets and that preservation of South Africa's cultural and heritage resources, identifying specific areas such as Robben Island, Namaqua National Park, Aliwal Shoal and Protea Banks. Operation Phakisa (2014) in relation to the designated focus areas also intends to create MPAs representative networks across South Africa to protect ocean biodiversity and ecosystem services aimed at facilitating sustainable development. Operation Phakisa (2014) notes that this management is directed towards the well-being of marine life as well as conservation of the marine environment. This is also more generally linked to SDG 14 which, according to Islam and Shamsuddoha (2018), calls for conservation and sustainable use of the oceans, seas and marine resources for sustainable development. Findlay (2018) and Odeku (2020) state that Operation Phakisa is a broad multi-sectoral programme that has initiatives in a number of South African sectors, which include the oceans economy, agriculture, health care and education. Findlay (2018) further notes that Operation Phakisa is overseen by the South African Department of Planning, Monitoring and Evaluation (DPME).

While specified locations are designated as MPAs by governments and the IUCN in relation to those that are also selected as World Heritage sites, the value of healthy oceans and coastal areas that underpin the importance of these areas are applicable to our ocean systems generally. Therefore the conditions of these locations are important, irrespective of whether they are MPAs or not, since the cumulatively well maintained and sustainably used coastal areas have positive socio-economic and environmental benefits. Lucrezi et al. (2017) examine the importance of scuba

diving tourism in the context of MPAs in Italy and Mozambique to encourage conservation, generate revenue and support local communities. Their study reveals the problems affecting the sustainability of the scuba diving tourism industry in protected areas. They undertook community questionnaire surveys and interviews with scuba diving operators to examine complex and interrelated interactions of environmental, social, and economic factors linked to various stakeholder needs and interests. The potential benefits and costs of MPAs are indicated in Table 2.2 below.

Table 2.2: Potential benefits and costs of MPAs (Sanchirico et al., 2002:10)

Categories	Potential benefits	Potential costs
Extractive users (for example, commercial and recreational fishermen)	Increase in catch, reduced variation in catch and improved catch mix (that is, greater frequency of older/ larger fish)	Decrease in catch, congestion on the fishing grounds, user conflicts, higher costs associated with choice of fishing location and increase in safety risks
Non-extractive users (for example, divers, ecotourists, and existence value)	Maintain species diversity, greater habitat complexity and diversity higher density levels	Damage to marine ecosystem and loss of traditional fishing community
Management	Scientific knowledge hedged against uncertain stock assessments and educational opportunities	Increase in monitoring and enforcement costs, and foregone economic opportunities (for example, oil, gas, and mineral exploration and bio-prospecting)

There is an increasing focus in the field of environmental economics to determine the valuation of natural resources. Jones et al. (2011) state that because political processes and decisions place emphasis on the economy and tax returns, determining the economic value of protected natural areas can support developing justifications and arguments to allocate funds and resources for natural area management, including conservation efforts. New et al. (2015) indicate the importance of establishing the value of protected/ natural areas but show the difficulties to this because of challenges to identify and calculate the economic value of goods and services in these areas. Hosking et al. (2014) also indicate the importance of accommodating stewardship of the ocean

resources, which could be beneficial to South Africa as there is a large ocean area to potentially exploit and manage. They assert that a range of facilitation and conservation management techniques are required to effectively manage South Africa's oceans. The importance of stewardship is noted by the Department of Environmental Affairs (DoEA) (2012: 65) as well in relation to one of its strategic goals to inform "stakeholders of the value and sustainable use potential of oceans and coastal ecosystems and the role of stakeholders in contributing to ocean stewardship".

There is increasing concern that the protection and conservation of coastal and marine resources are of paramount importance. This is even further enhanced by anxiety over climate change which Atzori et al. (2018) assert is influencing perceptions of tourist destinations and changing the reasons why visitors travel from beach comfort and satisfaction to broader considerations about the sustainability of coastal habitats and the negative impacts of climate change. The UN (2014) also indicates that CMT is vulnerable to climate change, natural disasters and pollution, which affects socio-economic impacts and the coastal natural resource base. Furthermore, Biggs et al. (2015) indicated that nature-based tourism in marine environments (including coastal areas that this study focuses on) is under threat from global change.

Better understanding visitor profiles, needs and perceptions can assist relevant authorities to better plan and manage CMT locations, which are often pristine and vulnerable destinations (Chen and Teng, 2016; Leijzer and Denman, 2014; Martinis et al., 2019; Oh et al., 2010; Oliveira et al. 2018; Rodella et al., 2019). Oh et al. (2010) specifically highlight the importance of balancing resident and tourist needs. They particularly note the importance of examining resident perceptions because while tourism is promoted by and in many communities as an economic development strategy, residents experience high levels of disruptions (including crime) especially during peak tourism seasons and when development projects are underway. Oh et al. (2010) also indicate that resident perceptions are likely to differ, especially among those who benefit directly from tourism and those who do not. Oh et al. (2010) did self-completion surveys with residents and tourists on North Carolina beach, with 572 and 378 surveys being subjected to analysis, respectively. The key finding is that residents and tourists differed about additional beach access and amenities.

Chen and Teng (2016: 213) specifically state that "the growth of beach tourism has increased the need for acceptable, practical and sustainable policies", including ensuring that carrying capacity is adequately considered. The World Trade Organisation (WTO) (1981) defines tourism carrying capacity as the maximum number of people that should visit a specific tourism destination at the same time that will not result in the destruction of the physical, economic and socio-cultural environment as well as cause an unacceptable decrease in the quality of the visitor's experience. Carrying capacity is an important aspect to consider, as noted in Chapter One. Corbau et al. (2019) state that tourism carrying capacity assessment remains one of the most useful tools when measures are taken for the management of coastal areas. Maciel et al. (2008) identify four aspects that are considered when establishing tourist carrying capacity in natural environments:

- Biophysical which are related to natural resources
- Socio-cultural which considers the impact of tourism on the local communities
- Visitor psychological aspects which refer to the maximum number of visitors that a destination/ location can sustain, over a specified period while promoting acceptable recreational experiences
- Management and administration which refer to the extent to which visitation can be controlled in a specific location to effectively manage the area

Chen and Teng (2016) and Han et al. (2018) note that considering carrying capacity is important to pursue green development as well as sustainable management policies and practices, especially in environmentally susceptible and ecologically sensitive beach tourism locations. As Leijzer and Denman (2014) state, the key coastal tourism attractions are associated with the environments (specifically aspects such as beaches, landscapes, marine and other wildlife, etc.) and related cultural attractions and historical sites which are often sensitive and fragile. The importance of sustainable and appropriate management policies and measures are also highlighted by Ban et al. (2017), Kitsiou et al. (2002) and Whitney et al. (2016). Kitsiou et al. (2002) further note that coastal management policies that focus on human activities rather than the ecological/ natural systems that support CMT activities are short-sighted and will lead to coastal ecosystems being threatened.

The above discussion resonates with Suciu et al.'s (2017) assertion that beaches are subject to diverse human and environmental pressures. They, therefore, argue that the assessment of the quality of beaches need to include multiple measures which this study attempts to do by undertaking observations on numerous beach sites along the KwaZulu-Natal coastline using

several indicators as well as including visitor survey data. The next section examines the different ways in which assessments have been conducted thus far.

2.5. Assessing CMT sites and resources

As discussed earlier, there is increasing pressure on the natural resource base in coastal and marine locations. In an attempt to assess impacts, the previous section indicates studies that have focused on aspects such as development, tourism and recreational activities in these areas. Examining environmental conditions and perceptions entails focusing on the non-use value of CMT resources. As Liu et al. (2019: 64) state:

> It is essential that the non-use value of beach tourism resources should be paid more attention. When this value is ignored or, worse yet, not valued, underestimation of the overall value is inevitable. This situation may make the preservation and sustainable development of beach tourism resources difficult.

Some of the studies that examine non-use values, perceptions and environmental conditions are discussed in this section.

One of the earlier studies evaluating MPAs was undertaken by Hockey and Branch (1997). They developed a methodology that assessed human utilisation, fisheries management and biodiversity protection. Kitsiou et al. (2002) used multiple criteria choice methods and GIS to evaluate and rank coastal areas in the northeastern part of the island of Rhodes in the Aegean Sea, Greece. Edgar et al.'s (2004) research focused on ecological baseline data for key resource species, examining specifically fishing practices and user bias, in the Galapagos Marine Reserve. They conclude that fishing restrictions should be imposed to ensure the future sustainability of specific species.

Needham and Szuster (2011) examined situational factors in coastal sites in Hawaii. Their research focused on social, resource and facility aspects such as facilities available in specific locations, crowding as well as visible environmental impacts (for example, the presence of litter) that detrimentally affect beach experiences. They found that beach users were willing to support restricting use, improving education and awareness, and improving facilities and maintenance to ensure that beach environments are taken care of.

Lucrezi and van der Walt (2016) assessed beachgoers' perceptions of sandy beach conditions in South Africa using a questionnaire survey. They examined how attributes such as demographic profile, travelling habits, motivations to visit, and recreational preferences influence beachgoers' perceptions of beach conditions. They found that beachgoers expressed concerns for the well-being of sandy beaches in relation to the state of biodiversity and conservation, underscoring the importance of the values underlying beach ecosystems. They conclude that coastal management needs to pay attention to the promotion of conservation while also maintaining the recreational quality of urban sandy beaches. Based on their research, Lucrezi et al. (2016) developed an assessment tool for sandy beaches that integrates beach description, human dimension, and economic factors to identify priority management issues.

Dodds and Holmes (2019) indicate that beachgoer demographics (age, gender, education, number of persons in party and type of tourist) and beach characteristics (including facilities present) are the main variables that influence overall experience satisfaction levels which impact on intent to revisit a destination. They identified and assessed three perceptual variables (Dodds and Holmes, 2019: 161):

- Satisfaction with facility: visitor satisfaction with the facilities at the beach, which include washrooms/ change rooms, environmental education, dog-friendly beach area, designated swimming area, garbage/ recycling containers, and access for persons with disability.
- Satisfaction with beach: visitor satisfaction with the beach, which includes beach location, beach cleanliness (amount of litter/ refuse and plastics on the beach), water quality, water cleanliness (amount of litter/ refuse in the water), water clarity (how clear the water is), amount of algae present (in the water, and/ or along the shoreline) and beach certification.
- Overall experience satisfaction: a single item variable used to assess visitors' overall satisfaction with their overall experience at the beach on the day the interview was conducted.

Chen and Bau's (2016) study of tourist beaches in southern Taiwan identified four factors (cleanliness in beach environments frequented by users, safety in these areas, beach protection for the environment and users as well as the management thereof, and facilities and services available in these locations) that affect beach environments which this study examines as well. Similar sentiments were expressed in Ballance et al.'s (2000) study in the Cape Peninsula close to two decades ago. They looked at the impact of litter on beach uses by completing interview surveys to ascertain the importance of beach cleanliness to residents and visitors in beach locations. Ballance

et al. (2000) reveal that most foreign beach users and close to half of the persons from the Cape Metropolitan Region who were interviewed were willing to spend more than seven times the average trip cost to visit clean beaches. They also indicate that up to 97% of the value of the beaches could be lost if standards of cleanliness are dropped, which could result in the regional economy losing billions of rands annually. Qiang et al. (2020) also found loss of tourism revenues as attributed to waste on beaches, especially in relation to impacts on the length of stay of tourists. They specifically showed that tourism revenues could increase by 32.2% and 28.9%, respectively, if plastics and cans on beaches are removed. Thus, the conditions of beaches have serious economic impacts. Schuhmann et al. (2019) also indicate that research shows that beach visitors are willing to pay for 'non-market' aspects of coastal and marine quality such as beach width, coral reef health and biodiversity.

Penn et al. (2016) examine resident and tourist preferences in relation to specific characteristics associated with beach recreation in Hawaii. They noted aspects such as sand quality, swimming safety conditions, water quality and congestion levels that influence perceptions of a destination. Penn et al.'s (2016) study showed that the two main attributes that visitors considered were water quality and excessive congestion. They indicated that tourists actively avoid destinations deemed to have poor water quality while residents placed more emphasis on avoiding excessive congestion. The importance of examining visitor perceptions is underscored by Penn et al.'s (2016) research which illustrates that both resident and tourists display higher levels of willingness to pay for attributes such as water quality and excessive congestion. Penn et al.'s (2016) also state that understanding visitor perceptions of beach quality assists in identifying negative environmental impacts such as littering and natural resource degradation in specific destinations. The importance of beach quality is also indicated in Birdir et al.'s (2013) study in Turkey. They also examined visitor willingness to pay to establish perceptions of beach quality. They found that visitors were willing to pay (although small amounts per trip to the beach location) to see the beaches improved in relation to removing litter and human debris, providing more social activities and facilities, and maintain the environmental quality of the beach.

Enriquez-Acevedo et al. (2018) and Rodella et al. (2019) also examined visitors' willingness to pay for beach ecosystem services. Enriquez-Acevedo et al. (2018) reveal that marine ecosystems, including sandy beaches which is the main CMT attraction, provide a range of ecosystem services including ecological functions (such as sediment storage and transport, and waste and climate regulation), food and materials, coastal protection, and recreational and scenic beauty. The study uses data collected from 425 respondents at three beaches in the Colombian Caribbean Region. The results reveal that the majority of the respondents expressed a positive willingness to pay to maintain beach ecosystem services beyond tourism purposes. Enriquez-Acevedo et al. (2018) concluded that willingness to pay did not depend on economic variables such as income or employment, but was more closely associated with variables relating to perceptions. Rodella et al. (2019) conducted 5 000 interviews at 41 different beach locations. The survey included three sections (Rodella et al., 2019: 96):

- tourists' characteristics such as gender, age, educational level, employment status and place of residence as well as information about frequency and beach users' motivation;
- beach users' perceptions of physical and environmental features of the beach, including available services and equipment; and
- examination of geomorphological problems, local management, the available surface per user, the coastal defence system and the willingness to pay for beach preservation.

They show that beach typologies affect willingness to pay for the management and preservation of beach, and these are also influenced by the socio-demographic profile of the respondents. Clemente et al. (2020) found that most tourists they interviewed in Lisbon, Portugal were not willing to pay a supplementary fee on tourist packages for environmental sustainability.

Carvache-Franco et al. (2020) used 390 visitor surveys undertaken in Manta, Ecuador, to create a demand segmentation in relation to tourists' motivations. They identify three motivational dimensions: ecotourism, sun/ beach/ entertainment, and relaxation. They thereafter identify three tourist clusters:

- Beach lovers: these are tourists with high motivations for resting, and enjoying the sun, beach and entertainment activities.
- Eco-coastal: these are tourists who in addition to being beach lovers, are attracted by the typical cuisine and attractions offered by a destination.
- Multiple motives: these are tourists who have high motivations for all the available attractions.

Carvache-Franco et al. (2020) conclude that understanding these typologies creates the basis for tourism providers to develop products and services customised to demand.

Liu et al. (2019) investigate the willingness to pay of tourists, specifically evaluating the non-use value of beach tourism resources to protect beaches from further degradation. Their case study was the beaches of Qingdao coastal scenic area in China. They, similar to Enriquez-Acevedo et al. (2018) and Rodella et al. (2019), applied the contingent valuation method to analyse the factors affecting tourists' willingness to pay. They found that the majority of the tourists surveyed were willing to pay to preserve beach tourism resources. The main factors that significantly affected willingness to pay were tourists' gender (females were more willing to pay) and traveling frequency to the beaches (those with a higher travelling displayed a higher probability of paying). Liu et al. (2019) conclude that the non-use value of beach tourism resources is beneficial to the sustainable development and preservation of beaches. Understanding willingness to pay for coastal and marine services are also linked to the user pays principle which, Dicken and Hosking (2009) assert, many conservation sites and CMT activities rely on.

Brouwer et al. (2017) undertook one of the first studies to assess the social costs of marine debris washed ashore and litter left behind by beach visitors at six beaches along different European coastlines (the Mediterranean Sea in Greece, the Black Sea in Bulgaria and the North Sea in the Netherlands). Surveys were used to ask beach visitors about their experiences with beach litter, their willingness to volunteer in beach clean-up programmes and their willingness to pay an entrance fee or increase in local tax to clean up marine litter. Brouwer et al.'s (2017) findings show significant differences between countries. Kiessling et al. (2017) also examine coastal litter in Chile, specifically in relation to levels of environmental awareness and action to address the litter problems. Munari et al. (2016) state that in addition to environmental degradation, marine litter stranded on beaches has a serious visual and aesthetic impact on tourists and local beachgoers, affecting overall beach enjoyment and causing a decline in CMT and thereby having negative long-term economic impacts.

Krelling et al. (2017) examine how beach marine debris influences differences in perceptions and responses of tourist groups, which can have an impact on tourism revenues in coastal locations. They argue that marine debris is one of the factors that impact on visitors' perceptions and experiences because this type of pollution is most visible and makes beaches aesthetically unattractive to users. They found that most beachgoers interviewed avoided a beach if they perceived it to have litter, opting to use an alternative neighbouring beach destination. Krelling et al. (2017) also compared marine debris in open-ocean and estuarine beach environments. They found that overall beach quality in relation to marine debris generation was most prominent in open-ocean beaches and was attributed mainly to local beach users. Krelling et al. (2017) estimate that litter on beaches may potentially reduce local tourism income by 39.1%. Lo et al. (2020) also state that the degradation of the aesthetic value of beaches results in the loss of revenue from tourism and can incur additional costs associated with coastal cleanup.

Lo et al. (2020) state that while visual surveys are the most common method to quantify and characterise beach litter, they argue that this approach is labour intensive and difficult to conduct, especially in remote locations or those that are not easily accessible. They suggest and assess the utilisation of the use of unmanned aerial vehicles or aerial drones using automated image requisition and processing. They found that this approach was three times faster than using visual approaches and conclude that drones can be a cost-effective and efficient sampling method for routine beach litter monitoring programmes.

Suciu et al. (2017) evaluated the environmental quality of sandy beaches in southeastern Brazil using metrics such as pH (potential of hydrogen), dissolved oxygen, coliforms and solid waste. They found that urbanisation effects on physicochemical metrics (pH and dissolved oxygen) were not significant, while coliforms concentration was significantly higher on beaches with highest recreational potential, although below the established limit for primary contact. They also noted that the prevalence of solid waste (mostly in the form of plastic which was the main source of debris) was significantly higher in urbanised areas and was above global norms. They conclude that there needs to be a balance between recreation and conservation actions, which include short-term responses such as fines and long-term measures such as educational policies. Suciu et al.

(2017) also demonstrate that the use of multiple metrics rather than a single impact metric provides more credible and valid estimates of the environmental quality of sandy beaches.

Anfuso et al. (2017) evaluate the scenic value of 100 beaches in Cuba using weighted, fuzzy logic based checklist containing 26 physical and human factors. They categorised sites into five classes from Class I, which was top grade scenery, to Class V, which was poor scenery. They found that Classes with poorer scenery had lower scores linked to poor environmental settings. They conclude that there is a need for improvements to beach management plans at these sites which could assist in attracting international tourists and developing new developing tourist destinations.

Philips et al. (2019) use general tourism environmental value orientations categories to examine user conflicts in MPAs in Hawaii. They assert that value orientations (which are not mutually exclusive but exist on a continuum) permit grouping people into useful homogenous subgroups to understand user differences. This is also useful to better understand use impacts. The variables that Philips et al. (2019) use provide a lens to identify important aspects to consider, which include:

- Anthropogenic orientation: beliefs and perceptions that humans are entitled to modify the natural environment for their needs and current human activities has limited environmental impacts which nature can cope with.
- Biocentric orientation: nature has a right to exist and the Earth has limited room, resources and human carrying capacity. Human activities, especially those that abuse the natural environment have disastrous consequences.
- Use orientation: natural environments should be managed to maximise user benefits, with recreational use being more important than protecting the natural environment.
- Protectionist orientation: the protection of natural environments should be prioritised and recreational use should not be permitted is it damages these areas. Natural areas should be protected for future generations and have value whether humans use it or not.

It is important to note that these studies generally focused on specific aspects, mainly debris and litter on the beaches as well as examining extractive activities such as fishing. Studies generally do not adopt a comprehensive examination of different aspects which this study does. Furthermore, from the research examined, none integrated visitor survey results with observations as undertaken in this study. Additionally, as indicated in the introductory Chapter, observations in this study were undertaken for peak and off-peak periods which permits a comparative examination of seasonality. Methodologically, therefore, this study contributes to research in relation to CMT.

Most of the studies that examine impacts in coastal and marine locations conclude that research assessing human activities and impacts in coastal areas informs more effective and comprehensive decision-making (Kitsiou et al., 2002). Additionally, evidence of negative impacts can be used to make a case for conservation efforts, especially of ecologically sensitive habitats as noted by Trave et al. (2017). Furthermore, Carvache-Franco et al. (2019) and Jarvis et al. (2016) argue that well maintained and ecologically healthy CMT habitats result in positive visitor experiences resulting in repeat visitation and positive word-of-mouth marketing.

Lucrezi et al. (2016: 2) assert that:

> Over the years, numerous proposals have been advanced to address the issue of a holistic approach in beach management. Beach evaluation was initially based on simple or complex combinations of characteristics to assess beaches and make management recommendations.

They add that typical examples of these types of beach evaluation approaches are national and international beach certification and award schemes against specified sets of criteria which include aspects such as bathing water quality, solid waste management, good accessibility, lifesaving, basic sanitary infrastructure, regulations, and environmental education.

An important eco-label programme to assess beach quality is the use of rating beaches and providing a Blue Flag status which Dodds and Holmes (2020) and Lucrezi et al. (2016) argue exemplifies beach certification and is an important eco-label. Slater and Mearns (2018) assert that Blue Flags is an important tourism industry tool to ensure effective management and sustainable development, limiting negative impacts on the environment. Mir-Gual et al. (2015) state that the Blue Flag classification for the beach coastal system tries to justify environmental quality. Geldenhuys and van der Merwe (2014) assert that the Blue Flag programme is beneficial from a conservation point of view as well as maintaining the cleanliness of beaches in South Africa. Lucrezi et al. (2016) note that the Blue Flag is an international award based on compliance with 33 criteria. Geldenhuys and van der Merwe (2014), Lucrezi et al. (2016) and Mir-Gual et al. (2015) indicate that the main criteria used to award a Blue Flag status are:

- water and beach quality (visually clean water, no industrial/ waste-water discharge, information about bathing water quality, no litter or oil in the water, information about local ecosystems phenomena, code of conduct reflecting laws governing the use of the beach, and water quality tests to be undertaken every two weeks)
- environmental management and information (existence of a beach management committee, sensitive beach area management, adequate number of waste disposal bins and facilities for the separation of recyclable waste materials, adequate number of toilet facilities with proper sanitation/ sewage disposal facilities, sources for drinking water, buildings and beach equipment must be properly maintained, sustainable means of transportation should be promoted in the beach area, access to dogs and other domestic animals should be strictly controlled, and cleanliness and health of coral reefs in the area)
- safety and security (safety measures in place to protect beach users, adequate number of lifeguards and lifesaving activities must be available, first aid kit on hand, emergency plans to cope with pollution risks, management of beach users and activities/ events to prevent and manage conflicts, contestation and accidents, supply of clean drinking water, and wheelchair access and accessibility features must be in place)
- environmental education and information (have a minimum of five educational activities, visible map of the beach and facilities, and display of Blue Flag programme information)

Dodds and Holmes' (2020) Canadian study examined consumers' satisfaction of beach characteristics and tourist preferences for beach choice selection using subjective indicators of destination competitiveness. They found that knowledge of Blue Flag certification among tourists increased the importance that beachgoers placed on selecting future destinations, as well as higher levels of overall satisfaction, satisfaction with water quality, water cleanliness and beach cleanliness.

Slater and Mearns (2018) examine perceptions and activity profiles of Blue Flag beach users in South Africa, where the programme has been implemented for 17 years in the Eastern Cape, KwaZulu-Natal and Western Cape, the three main CMT provinces. They found that the main attributes that influenced beach users' preferences were the actual beach itself (destination/ location that contributes to a sense of place), the quality of the beach (especially cleanliness) and water quality in the bathing area. Other variables that influence preferences were found to be ablution facilities, swimming conditions and the presence of lifeguards, signage with rules and regulations, parking facilities at and near the beach, security, children's play areas and close proximity to other amenities such as shops and services.

Mir-Gual et al.'s (2015) research underscored that most of the aspects considered in relation to awarding Blue Flag status focus on users rather than the environmental/ ecological integrity of the beaches. They challenge the use of Blue Flag awards as being eco-labels, arguing that these are quality labels of services offered to the bathers/ beach users and should be viewed as such.

Geldenhuys and van der Merwe (2014) undertook primary research at six beaches in KwaZulu-Natal (in the Margate area) to assess the impact of Blue Flag status on tourists' decisions to select a beach. They found that Blue Flag status had little influence on the decision-making of beach visitors since little difference was found between the decision-making aspects of Blue Flag and non-Blue Flag beach visitors. The key influencing factors in choosing a beach was found to be the landscape, popularity and cleanliness. It is important to note that these aspects are considered when determining the Blue Flag status of beaches. Thus, visitors do consider key aspects associated with Blue Flag status yet they are not aware of the status of the beach. This could be linked to public awareness of Blue Flag status in South Africa. As Slater and Mearns (2018) state Blue Flag beach managers/ operators (and this could apply to beach managers more generally) should monitor perceptions and interests of beach users to better understand and respond to their needs while maintaining the ecological integrity of beaches.

2.6. Conclusion

This Chapter indicates the importance of CMT as a sub-sector of tourism. It highlights that CMT locations/ sites are important ecological systems, providing a range of services that include social, economic and environmental benefits. However, there are various demands on these locations (including CMT, developmental pressures, climate change and conservation imperatives), which if not properly managed, can undermine the integrity of these sites. This will not only affect CMT, especially because the quality of beach locations influences visitation, but also ecosystems with dire environmental consequences. The Chapter also focuses on methodological approaches used to assess CMT (and specifically beach sites, which is the focus of this study) locations. The literature review reinforces assertions in the introductory chapter that studies either use visitor surveys or on-site observations, with limited studies that combine both as this research does. Additionally, none of the studies reviewed undertook a comparison of peak and off-peak

assessments as this study does. The next chapter provides an overview of the methodological approach used for primary data collection.

CHAPTER THREE
METHODOLOGY

3.1. Introduction

This chapter provides an overview of the methodological approach adopted to undertake the surveys and beach site observations. The next section provides a background to the case study by briefly depicting CMT in South Africa and then focusing on KwaZulu-Natal, the province where the surveys and observations were undertaken. The survey design (a combination of the quantitative survey method and qualitative site observation approach) is thereafter outlined. The value of a mixed methods research design is articulated. The research questions framing the study are presented together with a description of the study populations (visitors for the surveys and beach locations for the site observations), design of the data collection instruments, sampling framework and approach used, and data analysis approach adopted. Consideration of research ethical issues are also presented.

3.2. Background to the case study

This section provides an overview of CMT in South Africa, focusing mainly on Operation Phakisa and key resources along the country's coastline. Thereafter, KwaZulu-Natal's coastline is discussed since it is the case study.

3.2.1. CMT in South Africa

The introductory Chapter highlighted the importance of CMT in the context of Operation Phakisa's focus on the blue economy. According to Tegar and Gurning (2018: 128), the blue economy concept encapsulates leveraging economic opportunities associated with the ocean and coastal resources while ensuring "the sustainability of resource availability, ecosystem balance and environmental health, and encourage the effective utilisation and management of resources". Operation Phakisa, which was launched in 2014 and is an initiative of the DPME, pays attention to unlocking the economic potential of South Africa's oceans. The six focus areas (marine transport and manufacturing, oil and gas, aquaculture, marine protection and governance, small harbours development and CMT) is aimed at accelerating growth and development in South Africa by unlocking the potential of coastal areas and activities to enable job creation and improved socio-

economic conditions, especially for previously disadvantaged communities (Operation Phakisa, 2014; Walker, 2018). Walker (2018) states that Operation Phakisa established that the total contribution of ocean-related economic activity to South Africa's GDP in 2010 was R56 billion with these activities employing approximately 316 000 people. Walker (2018) further indicates that the long-term forecasts were of an additional GDP contribution by 2033 of between R129 billion and R177 billion and the creation of up to a million jobs. Cele and Ndlovu (2018) indicate that CMT, marine resource protection and oceans governance are the key focus areas in South Africa's Oceans Economy Operation Phakisa framework.

South Africa's key coastal positive attributes as identified by the DPME (2015), the Maritime Cluster (2015), Operation Phakisa (2014), Republic of South Africa (2019) and Walker (2018) are:

- Abundant coastal and marine assets.
- More than 3 900 km coastline that includes some of the most biodiverse ocean and marine ecosystems and environments globally, extending from the border with Namibia along the West coast (Atlantic Ocean) to the border with Mozambique along the East coast (Indian Ocean).
- World recognised and premier CMT destinations and attractions (covering tourism, recreational and leisure activities), including unique beach and marine experiences.
- A policy environment (linked to Operation Phakisa), discussed earlier, that demonstrates government's commitment to drive the development of the blue economy.

NDT (2016) specifically indicates that South Africa has 15% of the global marine species with 10 000 species of marine animals and plants.

Several challenges noted in relation to Operation Phakisa and CMT include South Africa's coastal and marine assets are not being optimally used for tourism and/ or recreational purposes; insufficient, underdeveloped and uncoordinated CMT products and events; ineffective domestic and international marketing strategies; delays in finalising and adopting important legislation; establishing more MPAs; and lack of support from the private sector to develop CMT products (Cele and Ndlovu, 2018; Maritime Cluster, 2015; Odeku, 2020; Walker, 2018). Rogerson and Rogerson (2019) critique Operation Phakisa for prioritising investment attraction and economic growth stimulation over issues about the conservation of maritime resources. Rogerson and

Rogerson (2020) also state that the policy environment concerning coastal tourism in South Africa is changing with new policy interventions and debates around the blue economy.

Glavovic (2006) states that coastal management efforts in South Africa have moved from a nature-centred and bureaucratic approach towards one that is people-centred and pro-poor that embraces an integrated approach. Glavovic (2006) further notes that this approach does not negate the intrinsic value of coastal ecosystems but includes sustainable livelihoods considerations that bring in the people dimension. This is important in the South African context, where transformation imperatives linked to addressing colonial and apartheid legacies need to be addressed.

Operation Phakisa (2014) also notes the importance of oceans and coastal resources which requires clear environmental regulatory frameworks and new coordinated sectoral management systems. However, to ensure that the frameworks and systems are appropriate and effective, it is important to understand the diversity in relation to natural resources, infrastructure and services, and visitation demands in specific locations/ sites. This is an aspect that this study contributes to.

3.2.2. CMT in KwaZulu-Natal

Climate is considered to be the key factor in the establishment of sustainability and success of tourism within a region (Becken, 2005). The east coast of South Africa, inclusive of KwaZulu-Natal, is boarded by the Aghulas current while the west coast is boarded by the Benguela current (Figure 3.1). The Benguela current is characterised as being a cold, wide current (200-300 km**)** which flows in a northward direction along the west coast of Southern Africa, while the Agulhas current is identified as a warm, narrow (100 km) current which flows and carries warm tropical and subtropical waters, in a southward direction along the east coast of Southern Africa (Lutjeharms, 2006). Pillay and Rogerson (2013) suggest that the warmer waters of KwaZulu-Natal's coastal regions play an influential role in attracting local and foreign tourists.

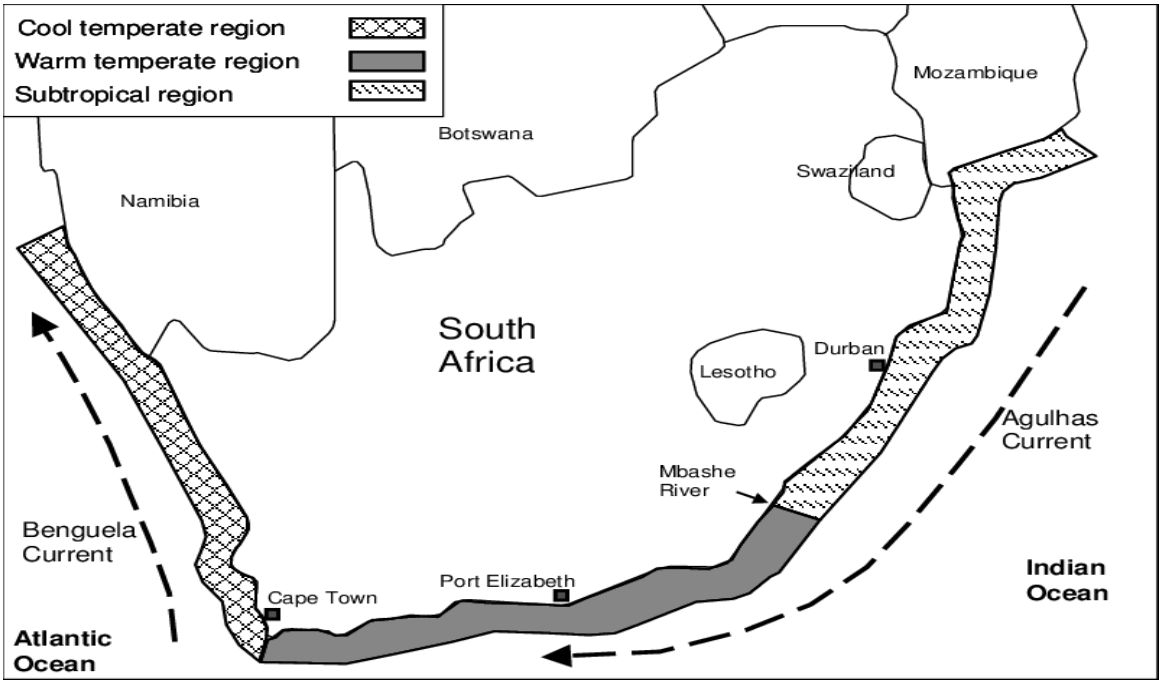

Figure 3.1: Oceanic currents along the South African coastline (Allanson and Baird, 1999)

Cele and Ndlovu (2018) state that the north and south coasts of KwaZulu-Natal province form the core of its CMT portfolio. KwaZulu-Natal has a coastline of more than 600 km with major attractions and conservation areas including the isiMangaliso Wetland Park UNESCO World Heritage Site and the Aliwal Shoal MPA. Cele and Ndlovu (2018) specifically state that Umkomaas (where Aliwal Shoal is located) and other coastal towns are popular diving and fishing destinations in the south coast, and have become part of the international tourism market. The coastline supports a diversity of tropical and sub-tropical marine species, some of which are only found in South Africa's east coast (Dicken and Hosking, 2009). Dicken and Hosking (2009) indicate that the Aliwal Shoal MPA is a multiple-use area with conservation, recreation, commercial, educational and research value. Shanganlall et al. (2019) assert that KwaZulu-Natal's coastline has been subjected over the past two decades to substantial human developments and is regarded as one of the most densely populated and popular coastlines in Africa. KwaZulu-Natal also has two major ports, Durban and Richards Bay, with Durban being Africa's busiest port (Walker, 2018). Pillay and Rogerson (2013) state that CMT plays a major economic role within the province of KwaZulu-Natal, primarily in the Durban metropolitan area. They further indicate

that Durban, along with other coastal regions within KwaZulu-Natal, utilises the traditional 'sand, sea and sun' activities as its fundamental tourism assets. Kohler (2010) states that most international tourists are attracted to coastal regions like KwaZulu-Natal because they seek "warm ocean waters to relax in and escape the Northern Hemisphere winters."

Vetrimurugan et al. (2019) show that KwaZulu-Natal has some of the best beaches and coastal locations in the world. They further assert that CMT is KwaZulu-Natal's main tourism attraction and supports other tourism products such as festival and events as well as arts and crafts. CMT resources are central to the province's tourism product portfolio. KwaZulu-Natal, similarly to coastal areas globally as discussed earlier, is also experiencing substantial pressure from development pressures associated with residential expansion, urbanisation and industrialisation (Vetrimurugan et al., 2019).

Dicken and Hosking (2009) state that KwaZulu-Natal has several key shark viewing activities and diving sites (whale shark, ragged-tooth shark *Carcharias taurus* and Zambezi shark *Carcharhinus leucas*) linked to shark-based ecotourism along South Africa's KwaZulu-Natal coastline. They further state that one of the key destinations for these activities is the Aliwal Shoal which is a shallow-reef system located about 50 km south of Durban, which is one of South Africa's foremost diving destinations.

It is important to note that CMT attractions in KwaZulu-Natal expand beyond the beach, with wildlife sightings, safaris and heritage site visitations being the predominant attractions (Pillay and Rogerson, 2013). The Hluhluwe-iMfolozi Park of KwaZulu-Natal is the oldest proclaimed game reserve in South Africa. The 96 000 hectare game reserve is home to the African Big 5 along with several other endemic species of fauna and flora (Hluhluwe Game Reserve South Africa, 2018). The Hluhluwe-iMfolozi Park is located 53 km from St Lucia, a popular tourist beach. Furthermore, it is recognised as a world heritage site (Mdiniso et al., 2017) that provides tourists with a range of recreational activities. including game drives and accommodation facilities. KwaZulu-Natal's coastline and its proximity to key natural attractions are shown in the Figure below.

Figure 3.2: Map showing KwaZulu-Natal's coastline and main natural attractions (Rooms for Africa, 2020)

Over recent years, beach quality criteria have been created and used to assess and respond to anthropogenic activities on beaches, as discussed in the previous section in relation to Blue Flag beaches. Beaches with Blue Flag status indicate high environmental and quality standards which may attract more tourist attention (Dodds and Holmes, 2020; Lucrezi et al., 2016; Slater and Mearns, 2018). The province of KwaZulu-Natal boasts 46 main tourist attraction beaches (Figure 3.3). According to Businesstech (2019), six are Blue Flag beaches which remain the same as those identified by Meyer et al. (2011) in Figure 3.3. The Blue Flag beaches are namely Marina Beach, Trafalgar Beach, Southport Beach, Umzumbe Beach, Hibberdene Beach and Ushaka Beach (which lies within Durban Beach). Tourist beaches along the KwaZulu-Natal coastline maintain additional safety through the implementation of shark safety nets. In the year 1952, shark nets were

first installed, to protect beach bathers, by lowering the risk of shark attacks by potentially dangerous sharks (Zambezi sharks, Bull sharks and Tiger sharks) (Sharks Board, 2020). The Sharks Board (2020) further states that by the year 1992, the KwaZulu-Natal Sharks Board, provided 44 beaches with a total of 44.6 km of shark nets between Richards Bay (28°48'S, 32°06'E) and Mzamba (31°05'S, 30°11'E). However, the number of installations were reduced to 37 at present, the southernmost installation being Port Edward (Sharks Board, 2020).

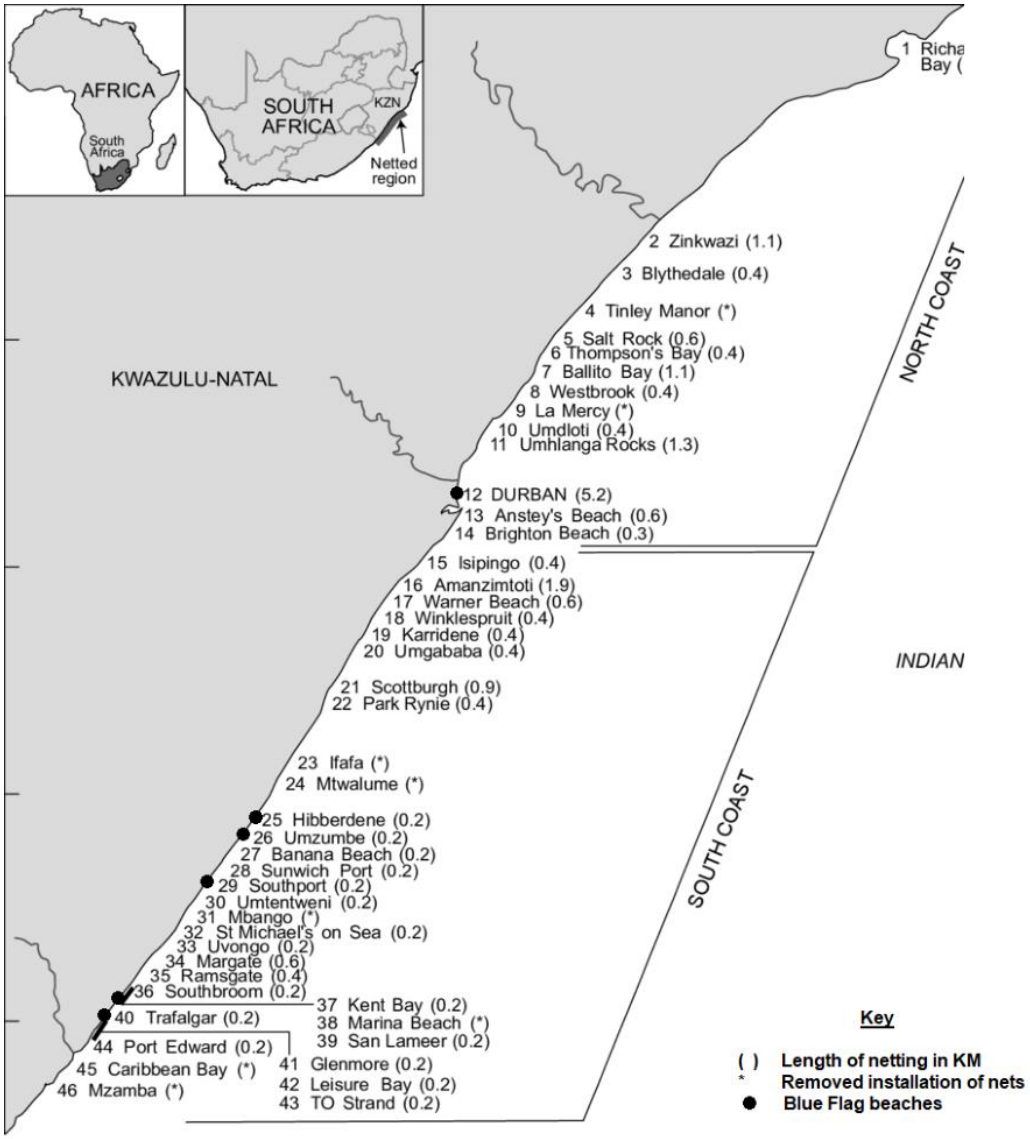

Figure 3.3: Location of shark net installations, shark net removals and blue flag beaches in KwaZulu-Natal (Meyer et al., 2011)

3.3. Research design

This study undertakes an assessment of the state of CMT tourism sites, targeting beaches at the provincial level by using KwaZulu-Natal as a case study. Linked to the objectives that frame the study presented in Chapter One, the following questions guide the research design:

- Who visits KwaZulu-Natal's main CMT sites in relation to social (age, gender, education and population group), economic (income levels) and spatial (types of visitors and place of residence) attributes?
- What are the different types of CMT and beach activities that visitors in KwaZulu-Natal participate in and would like to participate in in the future?
- How often do visitors frequent CMT locations in KwaZulu-Natal, and what are the main reasons for visiting these locations?
- What are visitor levels of satisfaction with, and perceptions of, CMT locations in KwaZulu-Natal?
- What is the state of CMT locations in KwaZulu-Natal in relation to selected aspects as per the observation schedule referred to later?
- What recommendations can be forwarded to protect resources in CMT locations in KwaZulu-Natal and ensure sustainable tourism development?

Examining beach locations in the key CMT sites along the KwaZulu-Natal province permits an examination of different contexts and environments. This is important given, as Rogerson and Rogerson (2019) state, that uneven spatial development characterises the existing coastal tourism economy in South Africa.

Creswell and Creswell (2017), Nieuwenhuis (2011) and Schoonenboom and Johnson (2017) state that the research design guides the selection of the population and data collection methods/ techniques used including sampling, data analysis and consideration of research ethics. This study used a mixed methods research design, using both quantitative and qualitative data collection approaches. Creswell and Creswell (2017) argue that mixed methods designs result in new and emerging approaches as the researcher combines methods to understand and examine issues that have complexities, which CMT has in terms of the issues raised in the previous chapter. Tonkin-Crine et al. (2016) argue that the combination of qualitative and quantitative approaches ensures that the differences and common aspects in data are considered, expanding the extensiveness of the data. Hussein (2015) highlights the value of combining qualitative and quantitative methods, arguing that when used together, each approach can contribute to compensating for the weaknesses of the other, which generates better research results. Additionally, Creswell and Creswell (2017),

Hussein (2015), Schoonenboom and Johnson (2017) and Tobi and Kampen (2018) assert that combining methods improves reliability, credibility, validity and legitimacy of the results. Similar sentiments are expressed by Schoonenboom and Johnson (2017) who state that the overall goal of mixed methods research (specifically combining qualitative and quantitative research components, as this study does), is to expand and strengthen a study's conclusions. Additionally, Tobi and Kampen (2018) indicate the importance of mixed or interdisciplinary research designs in contexts where interactions between humans and the environment generate challenges, which is the case in relation to CMT as discussed in the previous chapter.

Methodological triangulation is used in this study whereby various methods are combined as indicated by Carter et al. (2014), Heesen et al. (2019), Ndanu and Syombua (2015). Carter et al. (2014) assert that method triangulation can include observations, interviews and notes taken on the field. These are the methods that this study combines. Ndanu and Syombua (2015) also refer to environmental triangulation which relates to considering environmental aspects. They note, for example, location and specific settings being likely factors such as season of the year, day of the week and a specific time of day. Ndanu and Syombua (2015) caution that environmental triangulation is useful if there is a probability that in relation to the research focus, environmental factors may influence the results. Tourism generally (including CMT) is linked to seasonality. Therefore, this study also incorporated environmental triangulation by undertaking observations twice, during peak and off-peak seasons. Schoonenboom and Johnson (2017) note the need to consider sequential implementation when undertaking a mixed methods design. In this study, the surveys were conducted first, and the observations were undertaken thereafter.

Quantitative and qualitative approaches to data collection have differing characteristics. Queirós et al. (2017: 369) state that "qualitative methodology intends to understand a complex reality and the meaning of actions in a given context. On the other hand, the quantitative methodology seeks to obtain accurate and reliable measurements that allow a statistical analysis". McCusker and Gunaydin (2015) assert that qualitative research produce and analyse words as opposed to numerical data which is associated with quantitative methods. They further indicate that qualitative research focuses on the "how", "what" or "why", while quantitative research focuses on the "how many" or "how much"; measuring, counting and statistically

analysing specific aspects of the phenomena under study. Rubin and Babbie (2016) state that qualitative research provides a deeper understanding of aspects when these cannot easily be reduced to numbers. Quantitative data is also generalisable, focusing on trends and permitting an examination of the relationships between variables, while qualitative responses provide more depth of information.

For the literature review component of the study and information on the background for the case presented earlier, secondary data sources were used which included academic publications, reports, policies and information from internet sites. For the primary data collection component, this research uses survey data collected as part of a larger study supported by the NDT with Prof Urmilla Bob and Dr Suveshnee Munien (supervisors) being part of the project. Survey-based data from coastal and marine tourist site visitors were collected in the Eastern Cape, KwaZulu-Natal and Western Cape. I was involved in the data collection and inputting in KwaZulu-Natal. The main purpose of the NDT study was to develop a framework to establish the economic impacts of CMT in South Africa. The survey included questions on visitor profiles, current trends and future demand of CMT products/ activities, and perceptions of their beach experience and locations. This study uses the findings from 1200 visitor surveys conducted in KwaZulu-Natal at beach locations.

In addition to the visitor surveys, site observations were undertaken from December 2019 to March 2020 during peak and off-peak periods. Observation is an important method that permits a direct examination of phenomena against specified criteria (Kabisch et al., 2015). Kabisch et al. (2015) note the importance of observation in studies pertaining to urban green spaces as part of a broader qualitative methodological approach. What is important to note from these studies is that observation is not used in isolation, but it is complemented by other qualitative techniques such as focus group discussions and key informant interviews as well as quantitative approaches such as survey and spatial data. In this study, the survey data from the NDT study is supplemented with site visits to undertake an assessment using an observation schedule discussed later.

Both the surveys and the observations were undertaken in a case study context. As indicated earlier, KwaZulu-Natal province (and especially CMT beach locations) was the case study. Hancock and Algozzine (2016) assert that a case study permits describing and analysing context-

specific details pertaining to particular place/s and at specific time/s. Similarly, Harrison et al. (2017) assert that cases are chosen because of what they can reveal about the topic under investigation and are informed by the aim and conditions of the study. Furthermore, they indicate that case study research has developed and evolved to have a track record of being a "pragmatic, flexible research approach, capable of providing comprehensive in-depth understanding of a diverse range of issues across a number of disciplines" (Harrison et al., 2017: 1).

Ndanu and Syombua (2015) indicate the importance of validity and reliability in relation to quantitative research. They assert that this includes adequately considering the appropriateness of the data collection instruments used, and that the measure of a specific variable (for example, the manner in which the questions in the survey are phrased) adequately captures the concept so that it is understood in the same manner by all respondents participating in the study. For the NDT study, standard processes to ensure validity and reliability were adopted including piloting of the survey, checks during fieldwork, and data cleaning during and after inputting of responses into Statistical Package for the Social Sciences (SPSS). Hansen's (2017) study in Kosterhavet National Park, Sweden, underscores the importance of adopting a mixed methods approach to increase representativity, validity and reliability in the context of coastal and marine research that often means that data is collected in open spaces which is affected by the constant mobility of the visitor population and susceptible to changing weather conditions. Hansen (2017) advocates for the use of mixed methods when undertaking visitor monitoring research in coastal and marine areas. Hansen (2017) specifically uses on-site questionnaires and interviews as well as a combination of on-site and roaming observations. This study also uses visitor surveys and on-site observations. These combined approaches, as indicated by Hansen (2017), permit data triangulation.

3.3.1. Data collection instruments

The visitor survey (Appendix 1) included questions on socio-demographic profiles, current trends and future demand of CMT products/ activities, and perceptions of their beach experience and locations. The data from select questions are used in this study. Additionally, only visitor surveys completed at beach locations, which is the focus of this research, are used. The specific questions on the survey were mainly close-ended with only a few questions having an 'other, specify' option

that provided the opportunity for open-ended responses. The NDT questionnaire was made up of the following key areas:

- A screening question: whether individuals approached to participate in the study participated or planned to participate in CMT activities during their visit to the specific CMT location/ site were approached to be interviewed. If responded in the negative, the interview did not proceed.
- Visitor profiles
    - If the respondent was a local resident, a day visitor or overnight visitor.
    - Permanent place of residence of respondent.
    - Immediate (that is, persons spending money together) group size of respondent
- Activities participating in during visit
    - CMT activities respondents participated or planned to participate in during visit and in the future
    - Other non-CMT activities respondents participated or planned to participate in during visit to the CMT
    - Number of times respondents previously participated in CMT activities
    - If respondents would advise friends, relatives or colleagues to participate in CMT activities
- Consumer expenditure behaviour in relation to key categories including food, shopping, transport and accommodation, payment for CMT activities/ products. This economic component is not the focus of the study and has not been included in the analysis.
- Primary reason for visiting the location
- Level of agreement (using a Lickert scale: 1 - strongly disagree, 2 – disagree, 3 – neutral, 4 - agree and 5 - strongly agree) in relation to key aspects pertinent to the location including parking, facilities and amenities, refreshment areas, green location, signage, safety and crowding. These aspects are also covered in the observation checklist discussed later.
- Socio-demographic profile of the respondents: age, highest level of education, monthly net income, gender and historical racial category (for South Africans only).

The observation schedule (Appendix 2) covered the following aspects:

- Safety and security: presence of security guards, controlled access to the beach, patrolling of South African Police Services (SAPS), patrolling by private security company/ companies, presence of lifeguards, lifeguard station with equipment, signs of alcohol consumption, signs of drug use (injections, pipes, rolling paper, etc.) and presence of shark nets.
- Signage: the presence of any form of signage, no alcohol consumption, designated areas for swimming, restrictions in relation to pets, caution regarding wildlife (for example, crocodiles, sharks and hippos), no braai/ grilling, no bonfires, no music, no vehicles on beach, no camping, no/ restrictions on fishing and health risks.
- Facilities and amenities: parking, toilets and change rooms, restaurants and eating areas, informal trading, designated campsites, designated walkways/ paving for entrances, taps/ clean drinking water, construction on or nearby beach and seating facilities (benches, chairs, etc.).

- Solid waste management: presence of litter on beach (for example, mixed, glass and plastic); presence of bins; if bins are present, designated bins for specific types of waste (recycling and separation facilities); presence of leftover food; and presence of faecal matter.
- Natural resources: the presence of alien invasive species, protected area status, presence of litter in water, evidence of sewage or other drainage into water, evidence of erosion and presence of coastal/ dune forests (greenery).

Additionally, the checklist included noting whether specific recreational activities were observed at each of the beach locations. The recreational activities included relaxation, dining/ picnic/ braai/ drinking, swimming, snorkelling, scuba diving, sunbathing, walking, dog walking, running, cycling, rod fishing/ spear fishing, nautical sports (for example, sailing, parasailing, water-skiing and kayaking), boat cruise, surfing, whale watching, bird watching, scientific activities, collecting mollusc/ crustacean shells, picture posing/ photography and sports (for example, soccer, rugby and volleyball).

3.3.2. Sampling approach

Sampling is viewed as choosing a sub-set/ portion of a population or universe (Etikan et al., 2016). Etikan et al. (2016) further assert that population does not only refer to people which is relevant in this study since there are two targeted populations: CMT sites themselves and CMT location visitors. For the NDT study, the target sample for KwaZulu-Natal was 1 000 surveys. A proportionate sampling approach was used whereby more surveys were completed in beach locations that are known to attract more visitors such as beaches in Durban, Ballito, St Lucia and Amanzimtoti. Most surveys were completed in key locations along Durban's coastline, which is the main destination for both domestic and foreign tourists. Slightly more than the target sample size was achieved with 1200 surveys used for this study.

Survey data collection occurred from September 2018 to January 2019, as part of the NDT project discussed earlier. Surveys were conducted during peak and off-peak periods, including the September/ October and December/ January vacation seasons. The research was undertaken in CMT sites along the KwaZulu-Natal coastline from isiMangaliso Wetland Park/ St Lucia in the North to Port Edward in the South. At the selected CMT beach locations, spatially-based systematic sampling was used. CMT locations are generally open venues with people constantly

moving in and out of the area. It is also not feasible to know the targeted populations since visitors to these areas are transient and unknown. Hansen (2017) also indicates that part of the difficulty when conducting CMT research is that activities occur in large and open landscapes, which are generally public spaces. This poses sampling challenges. To reduce selection bias and ensure greater representation of the population being targeted (CMT location visitors), during the NDT project, fieldworkers were trained to follow a specific protocol when at each of the beach locations. On a given day and at an allocated site, fieldworkers chose the first person to be interviewed. The team of fieldworkers were told by the supervisor in which area of the beach location to conduct surveys to ensure a spatial spread. After choosing the first respondent, on completion of the survey, a systematic sampling approach was adopted. The fieldworker was trained to select the 20th qualifying person (18 years or older and who participated or planned to participate in CMT activities). If the individual declined to participate, the next qualifying person could be chosen. If the person chose not to participate, the next adult passing by was approached. If the weather permitted, surveys were conducted during the course of the day. Thus, the spatially-based, systematic sampling approach assisted in reducing bias as advocated by Bob et al. (2018). Additionally, undertaking surveys during peak and off-peak seasons contributed to ensuring that the responses were not biased in terms of seasonality.

To ensure improved data quality, face-to-face interviews were undertaken with persons over 18 years old to comply with ethical requirements that only adults participate in the study. Thus, in addition to the sampling approach adopted to limit bias in terms of survey participant selection, the face-to-face interviews assisted in increasing the reliability and validity of the data collected as well as improve the response rate. Questions were clarified, if needed, with attention being paid to train fieldworks that if this is done, they need to be careful not to influence the content of the responses.

The observation points for the study were the main CMT beach sites covered during the data collection and from North to South which included: Wedge beach, Point beach, Winklespruit beach, Amanzimtoti main beach, Reunion beach, Isipingo beach, Illovo beach, Park Rynie, Scottsburgh, Ifafa beach, Hibberdene beach, Umdloti beach, Westbrook Beach, Compensation beach, Tinley Manor Beach, Salt Rock beach, Addington beach, Ushaka beach, Umhlanga main

beach, Margate South Beach, Ramsgate, Marina beach, Leisure Bay, Silver beach, Blue lagoon beach, Laguna beach, Thekwini beach, Suncoast beach, Battery beach, Snake park beach, Bay of plenty beach, North Beach, Dairy Beach, Port Shepstone Beach, Umtentweni beach, Main beach (St Lucia), Jabula beach, Granny's Pool, Alkanstrand, Zinkwazi Beach, Blythedale Beach. The beaches were purposively selected to include all the sites that had CMT activities. In total, 41 beaches were covered.

3.3.3. Data analysis

The data collected was analysed thematically in relation to the objectives and research questions that guide the study. The key themes are:

- Socio-demographic profile of the respondents
- Types of CMT activities that visitors participate in and type of activities that the beaches offer/ recreational activities observed at the beaches
- CMT travel behaviour (frequency of CMT visitation) and reasons for visiting CMT beach locations/ sites
- Levels of satisfaction with and perceptions of CMT locations in KwaZulu-Natal among visitors
- State of CMT locations in KwaZulu-Natal in relation to safety and attributes, signage and information at beaches, facilities and amenities (including waste management practices), and natural resource aspects (including litter and restrictions).

In relation to the observations, where applicable, a comparative analysis of peak and off-peak results are undertaken.

In terms of the above, statistical and descriptive analyses of the survey and observation data were conducted. For both sets of data, the responses were inputted into SPSS. Tabulated frequency and percentage data were generated and subjected to analysis. Averages, median and modes were included for numerical responses. When these were collected in categories (for example, in relation to age and income), the middle values of the categories were used for the calculations. Furthermore, crosstabulations and chi-square tests, comparing the means of the variables (P values less than 0.05 denoting a statistically significant relationship), were used to establish whether there were relationships between selected variables. Thus, both descriptive and inferential statistics were used. In terms of the presentation of the results, because of the rounding off of percentages to one decimal point, in some cases the total percentage figures do not add up to 100%.

3.4. Ethical considerations

Ethical approval for the study was obtained from the University of KwaZulu-Natal (UKZN). Initially, ethical approval was granted for the NDT study (Appendix 3). The observation component of the study was submitted as an amendment to the initial project and was also approved (Appendix 4). All persons participating in the study were informed about the purpose of the research, the use of the results for academic purposes and reporting to Department of Higher Education and Training (DHET). Respondents were also assured that their identities would be confidential and anonymous. No personal details were collected from the respondents. Additionally, they were informed about voluntary participation, specifically that they could choose not to participate, withdraw at any time and decline from answering specific questions. Furthermore, only persons over 18 years old were interviewed.

3.5. Conclusion

The research design adopted for a study is important since it informs the focus of the research (the purpose of the data collection) as well as how data is collected and used. The research design also provides the link between the literature review and the empirical data collected. This chapter indicates the diversity of ecosystems and CMT resources in South Africa generally and KwaZulu-Natal more specifically. The research design is further outlined, highlighting the value of the mixed methods approach adopted. The data collection instruments and sampling approach to collect that primary data is also presented. A summary of the research methodology is given in Table 3.3 below.

Table 3.1: Summary of key elements of the research design adopted

Research design	Case study (KwaZulu-Natal CMT locations) approach
Targeted populations	CMT visitors in KwaZulu-Natal Selected CMT beach locations/ sites
Study method	Mixed method/ triangulation
Data collection instruments	Quantitative visitor survey and qualitative site observations using a structured checklist
Sampling techniques	Purposive sampling approach to select the beaches for both the visitor surveys and observations Spatially-based, systematic sampling approach to undertake face-to-face visitor surveys at purposively selected sites
Data analysis	Descriptive and inferential statistical analysis undertaken thematically
Ethical issues	Voluntary participation, informed consent and anonymity in relation to human subject engagements

The next chapter undertakes the data analysis and discussion.

CHAPTER FOUR
DATA DESCRIPTION AND ANALYSIS

4.1. Introduction

CMT in South Africa is a major economic contributor. Additionally, as the previous chapters have shown, KwaZulu-Natal in particular, with its more than 600 km shoreline, mild climate as well as a range of coastal and marine resources; is South Africa's key CMT destinations, especially in relation to domestic tourism. Chapter Two indicated increasing demands in coastal areas, including CMT concerning visitors and infrastructural needs. It is, therefore, essential to examine the visitor profiles to beach locations, which are generally ecologically sensitive and vulnerable areas. This relates to the need to better understand demands and pressures on coastal and marine environments generally as well. As noted in Chapter One, the focus of this study is the use of mixed methods (visitor surveys and beach observation assessments) to undertake a provincial analysis to examine visitor profiles and perceptions as well as CMT consumption patterns and the conditions/ state of selected sites along KwaZulu-Natal's coastline. The previous Chapters also underscore the limited research that combines both survey and observation-based methodological approaches.

The data analysis in this Chapter is undertaken thematically and are aligned to the research objectives and questions. The next section examines visitor profiles in terms of socio-economic attributes. This is followed by a discussion of the different types of CMT and beach activities that visitors in KwaZulu-Natal participate in and would like to participate in. Thereafter, the frequency of and reasons for visitation to CMT locations in KwaZulu-Natal are analysed. The visitor levels of satisfaction with and perceptions of CMT locations in KwaZulu-Natal are discussed next. The final section assesses the state of CMT locations in KwaZulu-Natal, as per results emanating from the observation checklists completed during peak and off-peak periods.

4.2. CMT site visitor profiles

Socio-demographic variables, such as age, gender, education and population group, influence levels of participation in and demand of CMT activities (Liu et al., 2019; Munien et al., 2019; Munro et al., 2019; Qiang et al., 2020; Rodella et al., 2019). Munro et al. (2019) specifically note the importance of examining socio-spatial data, as this section does, which assists in highlighting

what different visitors in a landscape value and why. Jönsson and Devonish (2008) show how nationality, age and gender influence travel behaviour in the Caribbean. Additionally, Rodella et al. (2019) highlight that the socio-demographic typologies also affect how willing users are to pay for the preservation and management of beach resources. Additionally, in relation to visitor survey-based research, the profiles of the respondents enable consumption patterns and perceptions to be contextualised and disaggregation to be undertaken in relation to socio-demographic variables.

4.2.1. Social profiles

In terms of gender, more respondents were males (53.8%) compared to females (46.2%). The results indicate that males and females frequent beach locations in KwaZulu-Natal. The findings are dissimilar to those of Dodds and Holmes (2019) and Kruger et al. (2018). They found that visitors to beach locations were mainly females. The results are more similar to that of Munien et al. (2019), who found that almost equal proportions of females and males visited beach locations. This could be attributed to differences in sampling strategies.

Age influences where persons travel to (that is, destination choice), the types of activities beach visitors participate in and the perceptions of specific locations (Jönsson and Devonish, 2008). The average age of the respondents was 36.4 years. The ages of the respondents ranged from 19 to 88 years old. The range of 69 years reflects that among adult visitors (respondents were required to be over 18 years old to participate in the study to meet ethical requirements) who visited beach locations, they were from differing age groups. However, the age category responses presented in Table 4.1 indicate that respondents were mainly in the groups of 31-40 years (34%) and 21-30 years (33.3%), making up close to two thirds (67.3%) of the respondents. Among the rest of the respondents, 18% were 41-50 years, 6.5% were 51-60 years, 5.7% were 18-20 years, 1.6% were 61-70 years and 0.4% were more than 70 years old. A few of the respondents (0.5%) regarded the information as confidential. The results were similar to Kruger et al.'s (2018) research which revealed that different age groups visited the Hermanus Whale Festival, with an average age of 34 years. The differences in age categories, however, were dissimilar to Dodds and Holmes' (2019) study. They found that in Canada beach visitors were equally dispersed among the different age groups. Additionally, the importance of senior and silver age tourists (55 years and older), as

shown by Losada et al. (2016) in Europe and Teradirek (2018) in Thailand, is not evident in this study.

Table 4.1: Age (in years) (n=1200)

	Frequency	Percentage
Confidential	6	.5
18-20	68	5.7
21-30	400	33.3
31–40	408	34.0
41-50	216	18.0
51-60	78	6.5
61-70	19	1.6
> 70	5	.4
Average		34.6

Table 4.2 shows the highest education level attained by the respondents. Education is important to consider since it is generally a good correlator with income (and thus access to discretionary spend to travel) as well as influences perceptions of the natural resource base and related sustainability considerations. As Dodds and Holmes (2019) and Kruger et al. (2018) indicate, education level is a key market segmentation variable and affects visitor experiences and perceptions. It is also important to note that CMT itself has educational aspects. As Barbier et al. (2017), Dicken and Hosking (2009), Dodds and Holmes (2019), Kobryn et al. (2018), Lucrezi et al. (2016) and Mir-Gual et al. (2015) indicate, CMT locations and activities are also associated with educational value and benefits, especially from an environmental perspective. In this study, only a few respondents did not answer the question (0.3%) or indicated that they did not have any formal education (0.9%). Among the rest, the majority of the respondents had some form of post-matric qualification (61.1%): certificates/ diplomas (24.6%), undergraduate degrees (23.8%) and postgraduate degrees (12.7%). Furthermore, 29.2% of the respondents had completed matric or secondary schooling. Fewer respondents stated partial secondary completed (7.5%) and primary completed (1.1%). Visitors to beach locations tend to reflect travel behaviour more generally with more educated persons usually travelling (Dodds and Holmes, 2019; Kruger et al., 2018; Lucrezi van der Walt, 2016; Munien et al., 2019; Rodella et al., 2019).

Table 4.2: Highest level of formal education completed (n=1200)

	Frequency	Percentage
No response	4	.3
No formal education	11	.9
Primary completed (7 years of schooling)	13	1.1
Partial secondary completed (8-11 years of schooling)	90	7.5
Matric/ secondary completed	350	29.2
Certificate/ diploma	295	24.6
Undergraduate degree	285	23.8
Postgraduate degree	152	12.7

4.2.2. Economic (income levels)

The income levels of visitors are important to consider since it influences consumption patterns and the spend footprint that links to economic impact. As Ahmed and Nadasen (2013) indicate, tourism destinations generally attempt to attract high-income earners to boost economic impact. However, as underscored in the literature review, in relation to CMT, which is associated with ecologically sensitive contexts, it is important to get the balance between consumption and conservation/ protection. Sustainable tourism practices become important. In relation to the monthly income of respondents (after tax deductions) ranged from none to R1 200 000, with an average of R21 364.25 (Table 4.3). The median was R15 000 and mode was R25 000, which indicates as per the income categories that most respondents earned R30 000 or less (50.8%): 10.3% earned R1 - R8 000, 11% earned R8 001 - R10 000, 12.7% earned R10 001 - R20 000 and 16.8% earned R20 001 - R30 000. Among the rest of the respondents who disclosed their income, 8.2% earned R30 001 - R40 000, 4.7% earned R40 001 - R50 000 and 1.5% earned more than R50 000. Almost all the respondents who earned more than R50 000 were overnight visitors who were foreigners. Some of the respondents (9.4%) did not earn an income. Almost a quarter of the respondents (24.8%) did not disclose their income, regarding this information as confidential, and 0.6% did not respond. The diverse income categories, especially higher incomes, are also associated with the educational levels and that persons with discretionary income travel.

Table 4.3: Monthly income (after tax deduction) in Rands (n=1200)

	Frequency	Percentage
Confidential	298	24.8
No response	7	.6
None	113	9.4
1-8000	124	10.3
8001-10000	132	11.0
10001-20000	152	12.7
20001-30000	202	16.8
30001-40000	98	8.2
40001-50000	56	4.7
> 50000	18	1.5
Average		21 364.25

The immediate group size (that is, the number of persons accompanying the respondent and who are spending money together) is also an indicator of consumption demands at CMT locations. Table 4.4 shows that the average group size among the respondents was 5.2, ranging from 1 to 34. The median was 4 and mode 3. Most respondents indicated that their immediate group sizes were between 2 and 5 (67.8%): 13.3% for 2, 20.1% for 3, 14.8% for 4 and 18.6% for 5. Some of the respondents (3.1%) were alone and did not have other persons accompany them. Among the rest, for 21.9% of the respondents, their immediate group size was 6-10 persons and more than 10 persons for 7.2% of the respondents. The prevalence of social groups is evident in this study and relates to the importance of CMT being associated with recreational and leisure activities that have social value (Brouwer et al. 2017; Joseph, 2017; UN, 2014).

Table 4.4: Respondents' immediate group size (that is, the number of persons that respondent is with who are spending money together) visiting location and participating in CMT activities (n=1200)

	Frequency	Percentage
1	37	3.1
2	159	13.3
3	241	20.1
4	190	15.8
5	223	18.6
6 – 10	263	21.9
> 10	87	7.2
Average		5.2
Median		4
Mode		3

4.2.3. Spatial characteristics

As indicated in the methodology section of the previous Chapter, a screening question was included to establish whether persons approached to participate in the study were visiting the beach location to take part in CMT activities. If they responded in the negative, they were not interviewed. Fieldworkers kept a record of the number of persons approached who indicated that they did not or would not participate in CMT activities on the day when the interview was undertaken. In total, across all the beach locations in KwaZulu-Natal where surveys were conducted, 278 persons were recorded as being approached who stated that they did not or would not participate in CMT activities. Given that the total number of persons interviewed was 1 200, most of the persons approached (81.2%) during this study visited the beach locations/ sites to consume CMT products or participate in CMT activities. CMT activities and products as visitor attractions are therefore clearly evident, which reinforces the importance of beach locations along KwaZulu-Natal's coastline.

In relation to the specific type of visitor participating in CMT activities, Figure 4.1 shows that close to half of the respondents (45.6%) were overnight visitors, followed by local residents (30.5%). The rest of the respondents (23.9%) were day-trippers. Lucrezi et al. (2016) and Munien et al. (2019) indicate that the type of visitor is important to consider when examining visitation profiles and trend. Visitors travelling from out of the area are specifically important in economic impact studies (Bob et al., 2018; Jones et al., 2011; Qiang et al., 2020; Seymour, 2012; Tkaczynski

and Rundle-Thiele, 2018), since spend among these groups (overnight visitors and day-trippers) are economic injections in the local economy. Different types of visitors also reflect different demands and interests, as noted by Munro et al. (2019). These can impact on beach sites, for example, locations that attract overnight visitors would likely have higher demands for accommodation and retail (including food) establishments. The results in this study are similar to those of Lucrezi et al. (2016) and Munien et al. (2019), whose results revealed that visitors at beach locations in South Africa were mainly overnight tourists and day-trippers. The economic contribution of CMT is further emphasised since the research reveals that most visitors to CMT beach locations are not locals. The importance of including locals is, however, important since they also participate in CMT activities and consume CMT products, thus their interests and demands need to be considered when managing these sites.

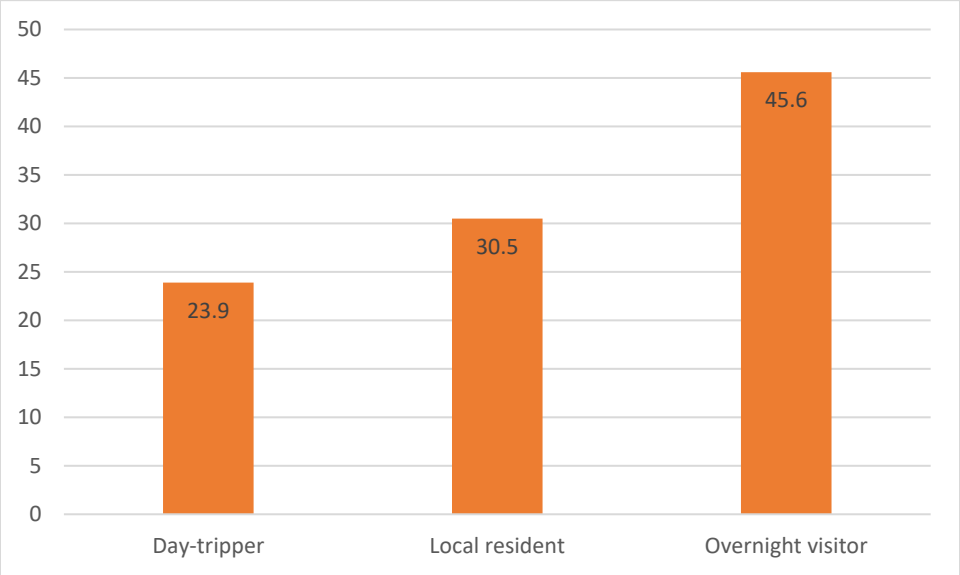

Figure 4.1: Local resident, day-tripper or overnight visitor (n=1200, in %)

Table 4.5 shows the continent that is the respondents' permanent place of residence for the international respondents. Almost all of the respondents (96.2%) resided in South Africa. Most of the respondents (74.1%) were South Africans. Since 30.5% of the respondents were local residents, this means that 43.6% of the South Africans were domestic visitors, which will be examined in

greater detail later. The international respondents, were from Europe (1.6%), North America (1.3%), Africa (0.8%), Asia (0.2%) and South America (0.1%).

Table 4.5: Continent that is the permanent place of residence of international respondents (n=1200)

	Frequency	Percentage
Not applicable (South African residents)	1154	96.2
Europe	19	1.6
North America	15	1.3
Africa	9	.8
Asia	2	.2
South America	1	.1

Table 4.6 shows the provinces where the permanent places of residence among the South African respondents were located. As indicated earlier, 30.5% of the respondents were local residents. A further 30.5% of the respondents were from KwaZulu-Natal but were overnight visitors or day-trippers. This indicates that for beach locations in KwaZulu-Natal, the main source market for visitors outside the locations were the province itself. For the rest of the provinces, the most prominent was Gauteng (16.3%), South Africa's and KwaZulu-Natal's main domestic tourism source market (Makhaola and Proches, 2017), followed by the Eastern Cape (11.2%). Fewer respondents were from Mpumalanga (2.8%), the Free State (2.3%), Limpopo (1.8%), the Western Cape (1.2%), North West (0.8%) and the Northern Cape (0.5%).

Table 4.6: Province where South Africans' permanent place of residence is located (n=1200)

	Frequency	Percentage
Not applicable (international respondents)	46	3.8
Local residents in KwaZulu-Natal (that is, reside in town/ areas where interview was held)	366	30.5
KwaZulu-Natal (that is, overnight visitor or day-tripper)	349	29.1
Gauteng	195	16.3
Eastern Cape	134	11.2
Mpumalanga	33	2.8
Free State	27	2.3
Limpopo	21	1.8
Western Cape	14	1.2
North West	9	.8
Northern Cape	6	.5

The socio-economic and spatial profiles of visitors to beach locations in KwaZulu-Natal indicate diversity. This is indicative of variations in demand and interests that need to be managed.

4.3. Participation and interest in CMT activities

The previous Chapter reveals that CMT is characterised by a range of activities that people participate in (ICMTS, nd). However. As noted in the literature review, it is important to underscore that many of the activities are interconnected and some, such as fishing that can occur in the ocean or be land-based, have both coastal and marine components. The DPSIR model that frames this study highlights, as indicated by Mandić (2020) and Ruan et al. (2019), that demands in coastal and marine areas, including CMT activities, are key drivers and pressures on environmental resources in these areas. It is in this context that the participation and interest in CMT activities in this study are revealed.

Table 4.7 presents the results in relation to participation in CMT activities on the day when and at the specific beach location where the interviews were held. Additionally, responses in relation to future interest in participating in specific coastal and marine activities are included. Respondents in this study generally participated in multiple CMT activities when visiting the beach locations. The results indicate the dominance of coastal activities in relation to participation, followed by

activities that have coastal and marine components. The least participation levels are associated with marine activities.

Table 4.7: CMT activities respondents did or planned to participate in while visiting the beach location when interview was conducted as well as future interest in participating in activities (n=1200, in %): Multiple responses

	Participation		Future interest	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Sand/ beach recreational activities (for example, swimming, walking or running, kite-flying, beachcombing, sand dune surfing)	1026	85.5	1122	93.5
Pure recreational (for example, dining out, shopping)	716	59.7	428	35.7
Sightseeing (for example, lighthouse tourism, cycling, marathons)	223	18.6	353	29.4
Wildlife tourism (for example, whale, seals and dolphin watching/ viewing, turtle tours)	198	16.5	406	33.8
Water sports (for example, big wave surfing, kite surfing, stand up paddle boarding, yachting, water skiing, water surfing)	171	14.2	308	25.7
Recreational fishing (for example, boat-based and land-based fishing, spearfishing, fishing competitions)	154	12.8	318	26.5
Coastal heritage activities (for example, local seafood and cultural tourism, cultural history)	143	11.9	347	28.9
Ocean experience (for example, cruise tourism, marinas, island tourism, shipwreck diving)	112	9.3	466	38.8
Educational and scientific excursions (for example, aquariums)	108	9.0	412	34.3
Events (for example, marine festivals and marine competitions such as yacht races or regattas, fishing competitions)	91	7.6	318	26.5
Scuba diving/ snorkelling (including shark cage diving)	68	5.7	371	30.9
Spiritual experiences	46	3.8	367	30.6

The most dominant activity that most respondents (85.5%) participated in or planned to participate in on the day of the interview at the specific beach location was sand/ beach recreational activities (such as swimming, walking or running, kite-flying, beachcombing and sand dune surfing). This

coastal recreational activity is extremely popular with even more respondents (93.5%) indicating that they would participate in this activity in the future. Sand/ beach recreational activities are associated with the 3S (sun, sea and sand) attractions of beaches (Carvache-Franco et al., 2019; 2020; Eagleton and du Plessis, 2019; Gössling et al., 2018; Lucrezi and van der Walt, 2016; Schuhmann et al., 2019), which in most cases are available to visitors without additional costs or effort. These authors further reveal that sandy beaches, which this study focuses on, are globally identified as main tourism destinations. Furthermore, as Eagleton and du Plessis (2019) state, beach activities is the main CMT attraction. This trend is also prevalent in the South African context as well, as noted by Lucrezi and van der Walt (2016), Lucrezi et al. (2016) and Munien et al. (2019). It is important to note, however, as Drius et al. (2019) argue, that sandy beaches (and especially coastal sand dunes) are some of the most ecologically sensitive environments and threatened habitats globally. Furthermore, these coastal areas have increasing development and residential demands placed on them.

Most respondents also participated in or planned to participate in pure recreational activities (59.7%), which was the second most prominent response after sand/ beach activities. This activity, as per the NDT (2016) classification, is deemed to be coastal and includes dining out and shopping at coastal locations and comprises coastal cuisine as well. These CMT recreational activities provide services that visitors are interested in. Importantly, they enhance local spend and therefore contribute to positive economic impacts, especially when overnight visitors and day-trippers spend at the beach locations. Additionally, in the South African context where job creation is a national imperative, these associated activities create local jobs and support small businesses. Furthermore, Carvache-Franco et al. (2019; 2020) and Tegar and Gurning (2018) note that recreational activities such as eating and retail establishments at coastal locations improve visitor experiences, creating more variations in activities to participate in. On the other hand, there is increasing recognition that these types of facilities can detract from positive beach experiences, as shown by Slater and Mearns (2018), with concerns of overcrowding and that persons are attracted to these locations not to participate in the CMT activities. This increases demand and raises sustainability concerns. It is important to note that in terms of the results from this study, among the CMT activities examined, pure recreational activities was the only one where fewer respondents indicated future interest in participating in this activity (35.7% compared to 59.7% who participated or planned to participate).

This could be linked to the concerns raised by Slater and Mearns (2018). Future research needs to further examine the impacts and visitor perceptions of shopping and eating establishments.

After sand/ beach as well as pure recreational activities, there is a substantial drop in the proportion of respondents who participated in the rest of the CMT activities, with less than 20% responses. Specifically, the third most prominent activity that respondents participated or planned to participate in was also in the coastal tourism category as classified by NDT (2016) which was sightseeing (including lighthouse tourism, cycling and marathons) (18.6%). More respondents (29.4%), however, indicated future interest in this activity. Lucrezi et al. (2016) identified sightseeing in South Africa as an important activity that visitors to beaches took part in. In this study, it could be that there are fewer sightseeing opportunities than, for example, in the Western Cape as shown by Munien et al. (2019).

Another coastal activity with substantially fewer responses were coastal heritage activities (for example, local seafood and cultural tourism and cultural history), with 11.9% of the respondents stating that they did or would participate in this activity. UNEP (2009) notes the importance of coastal heritage activities. It is also important to note that KwaZulu-Natal has a UNESCO declared World Heritage Site with coastal significance, the isiMangaliso Wetland Park (Nustad, 2020). The relatively low participation rates among the visitors may be attributed to them being unaware of coastal heritage destinations, which should be considered when marketing CMT destinations in KwaZulu-Natal. The results indicate that there is certainly potential for growth, with 28.9% of the respondents indicating future interest in coastal heritage activities. Leijzer and Denman (2014) assert that coastal cultural heritage experiences raise awareness pertaining to the need for their preservation and have societal benefits. Promoting coastal heritage resources/ activities is also raised by Rogerson et al. (2018) who indicate that they contribute to diversifying tourism-related products and can increase prospects for coastal business development, thereby enhancing economic inclusion. They further underscore the value that coastal heritage resources can have for rural development since these resources are generally located in or within close proximity to marginalised rural communities.

Educational and scientific excursions, for example, visiting aquariums was also a coastal activity identified by the NDT (2016) that had lower responses, with 9% of the respondents indicating that they did or would participate in this activity. However, substantially more respondents (34.3%) indicated future interest in educational and scientific excursions. This interest suggests that while current participation rates may not support Barbier (2017), Chakraborty et al. (2020), Dodds and Holmes (2019), Drius et al. (2019), Needham and Szuster (2011) and Rodella et al. (2019) assertions that a key activity in coastal and marine areas is associated with educational and scientific opportunities, including environmental education; the potential growth is evident.

Spiritual experiences (as a coastal activity) had the lowest responses, with 3.8% of the respondents indicating that they participated in or planned to participate in this activity. It is important to note, however, that this category has the highest difference in terms of future interest with 30.6% of the respondents indicating that they would like to participate in this activity in the future. From observation, and from an environmental point of view, it is important to note that many of these spiritual experiences comprise of traditional practices that include making 'offerings' that end up as water materials on the shore. These were also noted during the site visits as will be discussed later.

As indicated earlier, marine activities categorised by NDT (2016) generally had lower participation rates when compared to coastal activities. Specifically, the highest responses were for water sports (for example, big wave surfing, kite surfing, stand up paddle boarding, yachting, water skiing and water surfing) with 14.2% of the respondents indicating that they did or would participate. Additionally, 25.7% of the respondents indicated future interest in water sports. Lucrezi et al. (2016) and Tegar and Gurning (2018) note that water sport activities are popular at other CMT destinations. The lower participation rates could be attributed to water sports requiring some form of equipment and skills.

In relation to marine activities, the next highest rate for participation was ocean experiences (for example, cruise tourism, marinas, island tourism and shipwreck diving), with 9.3% of the respondents indicating that they did or would participate and 38.8% stating future interest in such activities. Cruise tourism, in particular, is an important ocean experience globally as shown by

Drius et al. (2019) and, as indicated by the NDT (2016), in South Africa as well. KwaZulu-Natal is home to Africa's largest port in Durban and hosts cruise tourism experiences as well. In terms of marine activities, the lowest responses among the respondents were for scuba diving/ snorkelling (including shark cage diving): 5.7% who did or would participate and 30.0% who indicated future interest. Interest in these activities was lower than in the case of CMT in island economies where higher levels of participation were noted in relation to scuba diving/ snorkelling activities (Cinner, 2014). The study results refute NDT's (2016) assertion that scuba diving/ snorkelling is an important activity in South Africa. From observation during this study and research undertaken by Schleyer and Celliers (2005), diving is at specific sites and usually associated with large marine wildlife experiences such as shark cage diving.

Three of the activities examined (wildlife tourism, recreational fishing and events) can have both land-based (coastal) and on/ in water (marine) activities/ experiences. Among these, the most prominent was wildlife tourism (for example, whale, seals and dolphin watching/ viewing and turtle tours), with 16.5% of the respondents indicating that they did or would participate. Furthermore, 33.8% of the respondents indicate future interest in wildlife tourism. This study did not examine the specific types of wildlife tourism activities participated in. Future research should disaggregate interest in key activities that exist in KwaZulu-Natal such as whale watching, dolphin viewing and shark diving. This is important because, while not the most popular among visitors to beach locations as this study reveals, as argued by Cinner (2014), Higham et al. (2016), Kruger et al. (2018) and Tkaczynski and Rundle-Thiele (2018), wildlife mammal experiences can have the most significant impacts and disturbances on the environment. Thus, managing these activities is critically important.

Recreational fishing (for example, boat-based and land-based fishing, spearfishing and fishing competitions) had the next highest responses among the respondents in relation to coastal and marine-based activities, with 12.8% stating that they did or would participate and 26.5% denoting future interest. As Lucrezi et al. (2016) and Papageorgiou (2016) indicate, recreational fishing can be land-based (from the beach, pier, etc.) or boat-based in the ocean). Barbier (2017), Chen and Bau (2016), Lucrezi et al. (2017), Myles (2017) and Snider et al. (2015) caution that overfishing is an increasing concern that needs to be addressed to ensure CMT sustainability. Papageorgiou

(2016) further indicates that fishing is a competitive sport. This aspect also relates to visitors participating in events as identified by the NDT (2016). In this study, 7.6% of the respondents stated that they did or would participate in events (for example, marine festivals and marine competitions such as yacht races or regattas, fishing competitions, surfing competitions, etc.) and 26.5% indicated future interest.

The responses reveal high levels of participation in CMT activities and, more importantly, generally higher levels of future interest. Demand is likely to be even higher since this study did not examine other types of CMT activities such as camping, horse riding, photography, 4x4 driving, quad biking and bike riding as identified by Lucrezi et al. (2016). Other types of activities that should be included in future research are recreational beach sports such as soccer and volleyball.

Some general observations are noteworthy. Firstly, most respondents participate in multiple CMT activities which resonates with assertions that beach locations are attractive because they provide opportunities to partake in a range of recreational and leisure pursuits. Thus, this study supports UNEP (2009) that the combination of land and sea environments create unique coastal and marine experiences and activities. Secondly, there are variations in activities visitors participate in with the most prominent being coastal rather than marine activities, which correlate with coastal activities having little or no additional costs once at the beach location. Thirdly, in relation to future interest, for all activities, more respondents indicated that they would be interested in participating in these activities, which is indicative of increased demand.

In relation to Carvache-Franco et al.'s (2020) CMT tourist market segmentation discussed in Chapter Two, the results in this study reveal that beach lovers (sun, sea and sand recreational and leisure activities) category is the most prominent. The eco-coastal (cuisine and attractions such as coastal heritage sites that are offered at specific destinations) cluster is also evident, together with multiple motives given that many of the respondents participated in more than one CMT activity. Understanding CMT participation rates and future demands, as this study does, also assists in tourism providers and managers developing products and services to customise and manage demand and usage. It is important to note that current CMT research appears to be misaligned to

which activities most visitors to CMT locations tend to participate in. Specifically, as underscored in the literature review Chapter, most research tends to focus on marine (such as shark diving and whale watching) rather than coastal tourism activities, although the latter is the most prominent. This could be attributed to marine activities having higher levels of economic spend and, therefore, the focus of CMT economic impact studies which tends to dominate CMT research (Bob et al., 2018; Munien et al., 2019). Thus, focusing on a range of CMT activities is a contribution to the CMT body of knowledge.

In terms of understanding demand and consumptions patterns that exert pressure in CMT locations, understanding which non-CMT activities visitors participate in and the products/ services they consume is critically important. Table 4.8 shows that visitors participate in a range of non-CMT activities. The multiple responses again reiterate that visitors have varied interests and demands.

The combination of activities that CMT site visitors participate in is central to establishing their profiles and interests which contribute to sustainably managing these locations as well as ensuring that products, services and amenities are in place to improve destination marketing. It is important to note that lower proportions of respondents participated in non-CMT activities compared to CMT activities as discussed above.

Table 4.9 shows the main activities respondents participated in or planned to participate in were adventure tourism (47.8%), food and wine (34.4%), social (visiting friends and family) (27.8%) and shopping (19.2%). While the specific types of adventure tourism respondents participated in were not included in the survey, the prevalence of this type of non-CMT activity links to the array of adventure tourism types in KwaZulu-Natal, especially the province's nature-based parks and game reserves as highlighted in the previous Chapter. This also relates to Rantala et al.'s (2018) assertions that a prominent type of adventure tourism was safaris and nature experiences. In terms of non-CMT food and wine consumption as well as shopping, NDT (2016) and UNEP (2009) indicate that these are key activities that are associated with tourism generally and CMT generally. It was also noted during the fieldwork and site observations that many of the beach sites have multiple food and retail stores that do not have coastal and marine cuisine and/ or merchandise/ paraphernalia. Additionally, some locations have mini-malls or shopping strips on or near the

beach locations. As indicated earlier, these activities do increase spend opportunities at CTM locations and thereby increase economic impact.

In terms of the rest of the non-CMT activities, 5% to 10% of the respondents identified nightlife (6.4%), visiting a casino (5.6%) and visiting theme parks (5.3%). Less than 5% of the respondents participated in or planned to participate in business activities (4.7%), visiting natural attractions/ wildlife that were not coastal/ marine (4.6%), sports (2.9%), culture and heritage not linked to CMT (2.4%), shows/ performances (1%), conferences (0.8%) and medical (0.5%).

Table 4.8: Main non-CMT activities respondents participated in or planned to participate in at beach location where interview was conducted (n=1200, in %): Multiple responses

	Frequency	Percentage
Adventure	574	47.8
Food and wine	413	34.4
Social (visiting friends and relatives)	333	27.8
Shopping	230	19.2
Nightlife	77	6.4
Visiting a casino	67	5.6
Visiting theme parks	64	5.3
Business	56	4.7
Visiting natural attractions/ wildlife that were not coastal/ marine	55	4.6
Sports	35	2.9
Culture/ heritage	29	2.4
Shows/ performances	12	1.0
Conference	10	.8
Medical	6	.5

4.4. Frequency of and reasons for visitation

Frequency of visitation is also an indication of demand as well as levels of satisfaction with experiences at CMT locations. The reasons for visitation reveal the extent to which CMT attractions and activities influenced persons to travel to specific sites. In terms of the frequency of visitation, Table 4.9 indicates that almost all the respondents (92.5%) had participated previously in CMT activities in South Africa, with 3.2% not having previously participated and 4.3% not providing a response. This indicates the popularity of CMT activities (and destinations) in the country. Among the respondents who did respond, the average was 18.5 times with a median and

mode of 5. The large differences between the average and the median and mode reveal the substantial differences in the range with the number of times fluctuating from none to 1 000. However, most of the respondents (55.9% in total: 9.6% one time, 11.2% two times, 12.1% three times, 10% four times and 13.1% five times) stated that they participated previously in CMT activities in South Africa between one to five times. Among the rest of the respondents, 9.5% participated previously in CMT activities between 6-10 times, 11.3% between 11-20 times, 9.3% between 21-50 times, 4.8% between 51-100 times and 1.8% more than 100 times. In terms of the 21 respondents who stated more than 100, these were all local residents who in all likelihood, lived close to the beach locations and regularly visited these areas.

The results clearly indicate that CMT destinations in South Africa have repeat visitors. This suggests satisfaction with CMT location experiences, which could contribute to positive word-of-mouth marketing among friends and families of previous visitors (Alegre and Cladera, 2009; Carvache-Franco et al., 2019; 2020; Jarvis et al., 2016; Lucrezi and van der Walt, 2016). Schuhmann et al. (2019) emphasise the importance of understanding repeat visitation patterns in relation to the marketing and management of coastal and marine destinations. Repeat visitation is also indicative of overall satisfaction with destination experiences and positive word-of-mouth marketing. The findings also indicate the growth of new visitors, with most only visiting a CMT destination five times or less.

Table 4.9: Number of times respondents participated previously in CMT activities in South Africa (n=1200, in %)

	Frequency	Percentage
No response	51	4.3
None	38	3.2
1	115	9.6
2	133	11.1
3	145	12.1
4	120	10.0
5	157	13.1
6-10	114	9.5
11-20	136	11.3
21-50	112	9.3
51-100	58	4.8
> 100	21	1.8
Average		18.5
Median		5
Mode		5

Almost all the respondents (97.8%) indicated that they would participate in beach/ CMT activities again in South Africa, which resonates with earlier responses in relation to future interest in participating in these types of activities. This is also indicative of the high demand for CMT activities and satisfaction with beach experiences. Among the rest of the respondents (2.2%), 1.4% did not respond and 0.8% cited reasons mainly related to living away from the coast and being unlikely to visit the coastal areas in the future. Unsurprisingly, these were all overnight visitors. Two respondents (0.2%) indicated that the beach experience was not fun and there was not much to do. One respondent (0.1%) stated that beaches were dirty and overcrowded.

The overall satisfaction with beach experiences at CMT destinations also emerged in relation to whether respondents would advise friends, relatives or colleagues to participate in CMT activities they participated in. Almost all the respondents (93%) indicated that they would and 5.8% stated possibly (Figure 4.2). Only 1.2% of the respondents stated that they would not.

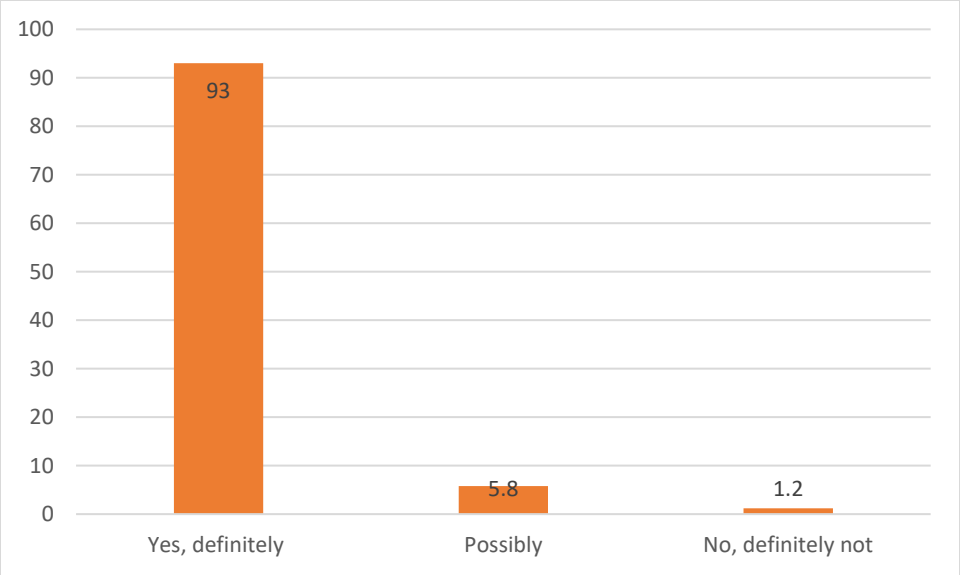

Figure 4.2: If respondent would advise friends, relatives and/ or colleagues to participate in CMT activity/ activities (n=1200, in %)

Visitor spend patterns are also important to consider when examining demand. Additionally, given the prominence of promoting economic impacts, understanding spend patterns permit CMT destination managers and businesses to ensure that demand is sustainably attained without compromising the quality of the sites and activities. As Chen and Teng (2016), Han et al. (2018), Ruan et al. (2019) and Trave et al. (2017) assert, undermining the ecological integrity of coastal and marine resources and destinations can have long-term negative impacts in terms of both visitation and spend as well as the environmental value. Ruan et al. (2019) specifically argue for the healthy balancing of competing demands.

Table 4.10 indicates the proportion of respondents who spent on specific categories that Bob et al. (2018) and Munien et al. (2019) state are important areas to consider in relation to tourism, including CMT: food and drinks, transportation, accommodation, shopping, payment for CMT products and activities, and other. Economic spend on at least one category (with most respondents spending on a least one category) is noticeable, with almost all the respondents (97.8%) spending money on the day of their visit when the interview was held at the specific beach location.

The main category of spend for most respondents (80.8%) was food and drink. This is similar to most studies such as Glaesser et al. (2017), Munien et al. (2019) and Papageorgiou (2016) examining spend patterns in relation to CMT. The second most important category of spend among all the respondents was transportation within coastal/ marine location (46.1%). This was followed by shopping (28.3%), payment for CMT products/ activities (for example, whale watching, shark diving, turtle tours and boat-based fishing) (12.2%) and other (for example, entertainment and visits to attractions) (11%). The least proportion of respondents spent on CMT activity merchandise (7.6%).

Table 4.10: CMT spend categories all respondents (together with their immediate group when not alone) spent or planned to spend money on when at the specific beach location where interview was held (n=1200)

	Frequency	Percentage
Food and drinks	969	80.8
Transportation within coastal/ marine location	553	46.1
Shopping	340	28.3
Payment for CMT products/ activities (for example, whale watching, shark diving, turtle tours, boat-based fishing)	146	12.2
Other (for example, entertainment, visits to attractions)	132	11.0
CMT activity merchandise	91	7.6
Total that spent some money during visit	1174	97.8

In terms of spend categories specific to overnight visitors/ tourists, most of these respondents spent or would spend on transportation during visit (including airfares and travel within South Africa only) (92.1). Furthermore, 64.4% of the overnight visitors interviewed spent on accommodation at coastal/ marine locations only. Substantially fewer respondents (9.5%) spent on accommodation outside coastal/ marine locations. This is an important finding since it denotes that overnight visitors frequenting coastal areas in South Africa either stay in paid accommodation in one coastal destination or stay in paid accommodation at other coastal destinations. Vacationing in coastal areas emerges as being important, and again reinforces the economic impact of CMT at the local level. The results also denote the importance of travellers staying with friends and family, rather than in paid accommodation.

Table 4.11: CMT spend categories overnight visitors/ tourists (together with their immediate group when not alone) spent or planned to spend money on when at the specific beach location where interview was held (n=547)

	Frequency	Percentage
Transportation during visit, including airfares and travel within South Africa only	504	92.1
Accommodation at coastal/ marine locations only	352	64.4
Accommodation outside coastal/ marine locations	52	9.5

The main reason for travelling to a destination reveals the degree to which tourism-related products and activities attract visitors to a specific site/ location. Eagleton and du Plessis (2019) note that in relation to beach destinations specifically, the motives of beachgoers in their choice of particular destinations is essential to consider. It reflects demand as well as indicates the extent to which socio-economic and environmental impacts can be attributed to the destination/ attraction/ activity. Table 4.12 shows the main reasons that the respondents visited the CMT location were the interview was held. The main reasons identified were holiday/ vacation purposes (44.2%) and participation in CMT activity in the beach/ coastal location (38.5%), making up the majority of the responses (82.7%). Fewer respondents identified the main reason as visiting friends and relatives (8.3%), business (4.3%) and other (4.6%). Two respondents (0.2%) stated shopping.

Table 4.12: Main reason respondent visited beach location where interview was held (n=1200)

	Frequency	Percentage
Holiday/ vacation purposes	530	44.2
Participation in CMT activity in this beach/ coastal location	462	38.5
Visiting friends and relatives	100	8.3
Business	51	4.3
Shopping	2	.2
Other	55	4.6

Transportation to and at the CMT destination is also important to consider since it influences experiences and spend as well as is a spatial infrastructural demands (such as roads, parking facilities, public transport provision, etc.) on tourism destinations which can have environmental impacts. As Penn et al. (2016) indicate, transportation is a source of congestion and frustration at CMT locations. In this study, Table 4.13 shows that the main mode of transportation respondents used on the day when interviewed to travel from the place where they were staying (including paid

accommodation in relation to overnight visitors) were private vehicles (61.3%). Other types of motorised vehicles used by the respondents with fewer responses were minibus taxis (15.3%), rental vehicles (9.5%), metered taxis (4.3%) and buses (1.2%). A few respondents (8.1%) stated that they walked to the CMT location. One respondent (0.1%) each stated bicycled, flight and train. Additionally, three interviewees (0.2%) did not respond.

Table 4.13: Mode of transportation from respondents' residence/ place of accommodation to beach location where interview was held (n=1200)

	Frequency	Percentage
No response	3	0.3
Private vehicle	735	61.3
Minibus taxi	183	15.3
Rental vehicle	114	9.5
Walked	97	8.1
Metered taxi (for example, Uber)	51	4.3
Bus	14	1.2
Bicycled	1	.1
Flight	1	.1
Train	1	.1

4.5. Visitor levels of satisfaction and perceptions of CMT sites in KwaZulu-Natal

Respondents were asked to rate their level of agreement with specific statements formulated to examine visitor perceptions of key aspects associated with the beach locations where the interview was held. A Likert scale was used, as indicated in Figure 4.3 below and in the previous Chapter, for respondents to indicate their level of agreement. Since the rating was from 1 (strongly disagree) to 5 (strongly agree), the average rating for each statement was also calculated (Table 4.14) to compare levels of agreement with the different aspects considered.

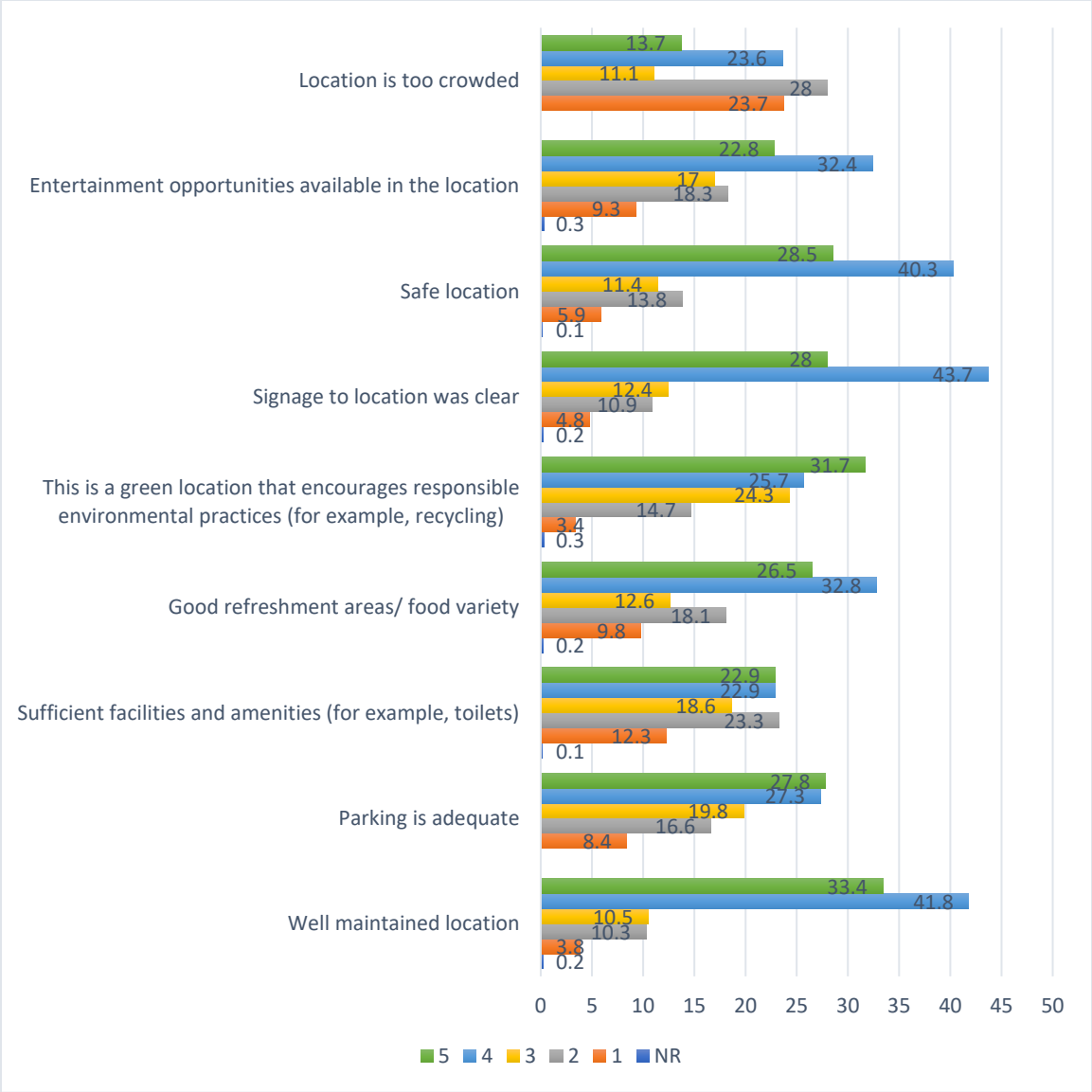

Figure 4.3: Level of agreement with specific statements about beach location where interview was conducted (n=1200, in %)

KEY: NR - no response 1 - strongly disagree 2 - disagree 3 - neutral 4 - agree 5 - strongly agree

The statement 'well maintained location' provides the respondents with an opportunity to indicate an overall or general impression of the beach location. This aspect is important to consider since it affects visitor experiences at a destination, thereby influencing whether someone will visit a destination again and/ or recommend a destination to others, as noted by Carvache-Franco et al. (2019; 2020), Dodds and Holmes (2019), Gössling et al. (2018), Jarvis et al. (2016) and Lucrezi

et al. (2016). Thus, general impressions influence word-of-mouth marketing. Dodds and Holmes (2019) and Jarvis et al. (2016) specifically assert that of all the factors that influence repeat visitation to a destination, the most important one is overall visitor experience. The results shown in Figure 4.3 indicates that 41.8% of the respondents agreed and 33.4% strongly agreed with the statement 'well maintained location'. This is a total of 75.2% in relation to the proportion of the respondents who agreed or strongly agreed that the location was well maintained. Among the rest of the respondents, 10.5% were neutral, and 14.1% combined disagreed or strongly disagreed with the statement. Two interviewees (0.2%) did not respond. An aspect not examined in this study is the extent to which visitors are willing to contribute to ensuring the beach locations are well maintained in KwaZulu-Natal. Future research should assess visitors' willingness to pay to maintain CMT locations.

As indicated earlier, almost all visitors travel to CMT locations using private vehicles (as the main form of transport) and other types of motorised vehicles. Parking is, therefore, important to consider since it is a key infrastructural need that can cause congestion and challenges if suitable parking is not present at these locations. From an environmental perspective, the lack of parking facilities can also result in vehicles being parked on verges and in areas that can have an impact on the natural resource base. The results show that among the respondents, 27.3% agreed and 27.8% strongly agreed (with a total of 55.1%) with the statement 'parking is adequate' (Figure 4.3). Among the rest of the respondents, 19.8% were neutral, 16.6% disagreed, and 8.4% strongly disagreed. The respondents who indicated neutral were mainly those who walked to the CMT location, used public transport or paid for transport. Slater and Mearns (2018) and Snider et al. (2015) highlight the importance of adequate parking at beach locations. Slater and Mearns (2018) specifically focus on how parking influences perceptions and Blue Flag beaches and Snider et al. (2015) indicate that perceptions of the availability of and convenient access to parking at beach locations influences decisions to visit a specific beach location. In the South African context, given high levels of safety concerns, safe and secure parking may be an important aspect that visitors consider as well.

The availability and quality of facilities and amenities (such as toilets, change rooms and shops) is also a factor that influences visitor perceptions of CMT locations and affects positive

experiences as shown by Dodds and Holmes (2019), Jarvis et al. (2016), Lucrezi et al. (2018), Scholtz et al. (2015) Slater and Mearns (2018), Snider et al. (2015) and Tegar and Gurning (2018). Additionally, Penn et al. (2016) assert that the absence or presence of facilities and amenities at recreational beaches (the focus of this study) is a key attribute when assessing the quality and attractiveness of a destination. However, it is important to note that providing facilities and amenities at beach locations (which is a key demand of visitors to improve their experience and comfort while at the destination) can damage the natural environment, as noted by Liu et al. (2019) and Oh et al. (2010). Additionally, improved facilities and amenities can increase demand and visitation, which also, if not well managed, can have environmental impacts if the carrying capacity of specific locations is exceeded. This can, in the long-term, affect the sustainability of CMT at specific destinations. In this study, Figure 4.3 shows that less than half of the respondents (45.8% with equal proportions of 22.9%) agreed or strongly agreed with the statement 'sufficient facilities and amenities'. Among the rest of the respondents, 18.6% were neutral (generally those who did not use any facilities or amenities) and 35.6% disagreed (23.3%) or strongly disagreed (12.3%) with the statement. One interviewee (0.1%) did not respond.

As indicated earlier (Table 4.10), most visitors to CMT locations in KwaZulu-Natal consume food and drinks while at the CMT location. The consumption of food and drinks also links to the provision of amenities and facilities since visitors generally tend to expect eating establishments or vendors in recreational areas. As will be discussed in the next section, the consumption of food and drinks also generates waste which needs to be properly disposed of, especially in vulnerable ecosystems. This is important to consider since litter/ waste is a key concern at beach locations as shown by Dodds and Holmes, 2019; Edgar et al., 2004; Kiessling et al., 2017; Lucrezi et al., 2016; Needham and Szuster, 2011; Qiang et al., 2020; Rodella et al., 2019; UN, 2017). The results in this study indicate that 59.3% of the respondents agreed (32.8%) or strongly agreed (26.5%) with the statement 'good refreshment areas/ food variety' at the CMT location (Figure 4.4). Among the rest of the respondents, 12.6% were neutral and 27.9% disagreed (18.1%) or strongly disagreed (9.8%) with the statement. Two interviewees (0.2%) did not respond.

As indicated earlier, environmental aspects do not only affect visitor experiences at beach locations but also includes the consideration of ecological integrity aspects. Cañavate et al. (2019), Joseph (2017) and Liu et al. (2019) indicate that there are growing concerns pertaining to the sustainability

and quality of coastal and marine resources which relate to increased CMT and other demands and unsustainable consumption. They further state that threats associated with climate change are important to consider in the context of CMT, especially since many of these locations are environmental regulators and provide numerous ecological and socio-economic services, as highlighted by Barbier (2017), Chakraborty et al. (2020), Drius et al. (2019), Enriquez-Acevedo et al. (2018), Kobryn et al. (2018) and Rudianto et al. (2019). In relation to consumption, increasingly consumers are also influenced by whether green and sustainability aspects are sufficiently considered when making tourism travel and consumption decisions. The results show that among the respondents 25.7% agreed and 31.7% strongly agreed (with a total of 57.4%) with the statement 'this is a green location that encourages responsible environmental practices (for example, recycling)' (Figure 4.3). Among the rest of the respondents, 24.3% were neutral, 14.7% disagreed and 3.4% strongly disagreed. Three of the interviewees (0.2%) did not respond. The neutral responses were the highest compared to all the statements. This may be indicative of visitors not being aware of environmental/ green issues in relation to CMT locations.

Slater and Mearns (2018) state that signage provides an indication of whether a location is well managed and maintained. Signage is also a way of communicating a range of information to visitors to a site as elaborated on later. The results indicate that 71.7% of the respondents agreed (43.7%) or strongly agreed (28%) that 'signage to location was clear' (Figure 4.3). Among the rest of the respondents, 12.4% were neutral and 15.7% disagreed (10.9%) or strongly disagreed (4.8%) with the statement.

Safety and security aspects are key variables that influence which CMT destinations people go to and visitor experiences while at a destination (Chen and Teng, 2016; Dodds and Holmes, 2019; Eagleton and du Plessis, 2019; Qiang et al., 2020; Rodella et al., 2019; Tegar and Gurning, 2018). In the South African context, crime and safety is a major area of concern. The results show that among the respondents, 40.3% agreed and 28.5% strongly agreed (with a total of 68.8%) with the statement 'safe location' (Figure 4.3). Among the rest of the respondents, 11.4% were neutral, 13.8% disagreed and 5.9% strongly disagreed. One interviewee (0.1%) did not respond. It is important to note that the level of agreement for 'safe location' differed from Ahmed et al. (2008), Potgieter (2018) and Walker's (2018) concerns about safety and security concerns in tourism destinations in South Africa (including CMT locations). The reasons for the high levels of

satisfaction will be further explored in the next section when the site observation results are presented, especially in relation to security presence at beach locations.

Entertainment opportunities contribute to overall visitor experiences and satisfaction, especially in recreational and leisure spaces that beach locations are. This is also linked to earlier responses that show that CMT location visitors tend to participate in multiple CMT and non-CMT activities, which is indicative of the recreational and leisure expectations and value associated with beach locations. Figure 4.2 shows that 55.2% of the respondents agreed (32.4%) or strongly agreed (22.8%) that there are 'entertainment opportunities available at the location'. Among the rest of the respondents, 17% were neutral and 27.6% disagreed (18.3%) or strongly disagreed (9.3%) with the statement. Three interviewees (0.2%) did not respond.

The last statement was the only one that was formulated as a negative statement: 'the location is too crowded'. Overcrowding is a concern at beach locations, which affects visitor perceptions and experiences (Chen and Teng, 2016; Jarvis et al., 2016; Krelling et al., 2017; Lucrezi and van der Walt, 2016; Needham and Szuster, 2011; Oh et al., 2010). Crowding also indicates unsustainable demands and practices as well as exceeding carrying capacity, which is important to consider as argued by Chen and Teng (2016), Corbau et al. (2019) and Han et al. (2018). The results show that among the respondents, 23.6% agreed and 13.7% strongly agreed (with a total of 37.3%) with the statement 'location is too crowded' (Figure 4.3). More respondents (51.7%) disagreed (28%) or strongly disagreed (23.7%) with the statement. The rest of the respondents (11.1%) were neutral.

Table 4.14 presents the averages of the level of agreement out of a rating scale from 1 (strongly disagree) to 5 (strongly agree), as indicated in Figure 4.3. As indicated earlier, 'location is too crowded' was the only negative statement and attained an average of 2.8. The rest of the statements have averages of over 3, indicating a bias towards respondents agreeing with the statements. The statement with the highest average was 'well maintained location' (3.9) followed by 'signage to location was clear'. Both 'this is a green location that encourages responsible environmental practices (for example, recycling)' and 'safe location' had an average of 3.7. Both 'parking being inadequate' and 'having good refreshment areas/ food variety' had an average of 3.5.

‘Entertainment opportunities available in the location’ and ‘sufficient facilities and amenities (for example, toilets)’ had averages of 3.4 and 3.2, respectively.

Table 4.14: Averages of agreement with specific statements about beach location where interview was conducted

STATEMENT	Average rating
Well maintained location	3.9
Signage to location was clear	3.8
This is a green location that encourages responsible environmental practices (for example, recycling)	3.7
Safe location	3.7
Parking is adequate	3.5
Good refreshment areas/ food variety	3.5
Entertainment opportunities available in the location	3.4
Sufficient facilities and amenities (for example, toilets)	3.2
Location is too crowded	2.8

The chi-square test results from cross-tabulations examining the associations between the levels of agreement with specific statements and demographic variables (specifically age, education and gender) as well as the type of visitor (day tripper, overnight visitor and local resident) are presented in Table 4.15. The results reinforce the importance of examining demographic profiles and visitor type in terms of perceptions of CMT sites. For most variables, associations were noted with p values being less the .05. For all statements and visitor type, there were strong associations with P values of less than 0.00. An examination of the crosstabulations’ results indicate that consistently overnight visitors expressed higher levels of agreement with the positive statements and lower levels of agreement with the one negative statement (location is too crowded). This indicates higher levels of satisfaction with the destinations which may be attributed to tourists generally choosing the specific location to travel to. In relation to age, the associations were that middle-aged visitors to the sites had higher levels of agreement with most statements and lower levels of agreement with location is too crowded. Similar levels of agreement were found in relation to male and respondents with higher levels of formal education.

Table 4.15: P values of chi-square test results examining associations between levels of agreement with statements and demographic profile of respondents (age, education and gender) as well as visitor type

STATEMENT	Age	Education	Gender	Visitor type
Well maintained location	.001	.006	.682	<.000
Signage to location was clear	.000	<.000	<.000	<.000
This is a green location that encourages responsible environmental practices (for example, recycling)	.001	.000	.902	.000
Safe location	.005	.001	<.000	<.000
Parking is adequate	.001	.062	.004	<.000
Good refreshment areas/ food variety	.057	<.000	.018	<.000
Entertainment opportunities available in the location	.010	<.000	.207	<.000
Sufficient facilities and amenities (for example, toilets)	.274	<.000	.048	<.000
Location is too crowded	.003	.078	.077	<.000

4.6. Assessment of the state of CMT locations in KwaZulu-Natal

As indicated in the methodology Chapter, the visitor surveys were complemented with on-site CMT location observation assessments in relation to a checklist which had two sections: physical observation of attributes against a rating scale and observation of recreational activities on the day when the on-site observations were conducted. The on-site observations were undertaken at 41 beach locations at selected key CMT locations along KwaZulu-Natal's coastline. At the 41 locations, observations were done during peak and off-peak periods to ensure that seasonality is adequately covered. Tourism is prone to seasonal variations which are important to understand (Bob et al., 2018; Ndanu and Syombua, 2015; Oh et al., 2010). Examining issues in relation to peak and off-peak seasons specifically, which this study does, also contributes methodologically to environmental triangulation as indicated by Ndanu and Syombua (2015). In this section, the on-site observation results are presented comparatively for peak and off-peak assessments.

The physical observation of attributes was undertaken thematically in relation to safety and security, signage, facilities and amenities, solid waste management and natural resources. In terms of the responses, present (P) denotes that the locations covered the specific aspect, that is, the aspect was observed during the site visit. For some aspects, the rating is not applicable. Table 4.16 indicates the presence of and rating (where applicable) of safety and security aspects observed at the CMT beach locations.

Table 4.16: Presence of and rating (if applicable) of safety and security aspects linked to specific CMT site/ location where interview was held (in %)
P Present 1 – Poor 2 – Fair 3 – Satisfactory 4 – Good 5 – Excellent
* Aspect could not be rated

	Off-peak (n=41)						Peak (n=41)					
	P	**1**	**2**	**3**	**4**	**5**	**P**	**1**	**2**	**3**	**4**	**5**
Signs of alcohol consumption *	87.8	-	-	-	-	-	95.1	-	-	-	-	-
Signs of drug use (injections, pipes, rolling paper, etc.) *	58.5	-	-	-	-	-	68.3	-	-	-	-	-
Presence of security guards	53.7	7.3	41.5	4.9	-	-	90.2	2.4	53.7	26.8	7.3	-
Presence of lifeguards	31.7	4.9	12.2	14.6	-	-	78.0	7.3	4.9	56.1	7.3	2.4
Lifeguard station with equipment	31.7	7.3	17.1	7.3	-	-	75.6	9.8	14.6	41.5	7.3	2.4
Presence of shark nets *	24.4	-	-	-	-	-	24.4	-	-	-	-	-
Patrolling by private security company/ companies	22	2.4	17.1	2.4	-	-	41.5	-	-	41.5	-	-
Patrolling by KwaZulu-Natal Wildlife	9.8	-	-	7.3	2.4	-	9.8	-	-	7.3	2.4	-
Controlled access to beach	4.9	-	-	4.9	-	-	22.0	-	2.4	9.8	7.3	2.4
Patrolling by South African Police Services	-	-	-	-	-	-	58.5	4.9	4.9	46.3	2.4	-

At most beaches (87.8% during off-peak and 95.1% during peak) there were signs of alcohol consumption. The next aspect observed at most of the beaches was signs of drug use (injections, pipes, rolling paper, etc.) (58.5% during off-peak and 68.3% during peak). In addition to seeing needles, pipes and rolling paper and stubs, at some of the beaches; the smell of marijuana was evident as well as seeing visitors smoking marijuana. This is of concern not only because of the behaviour of inebriated persons or those on drugs but also in terms of litter such as alcohol bottles and used needles. These are not only aesthetically unappealing but can be a health hazard for humans and the natural environment. Only one beach, with controlled access, searched vehicles for alcohol before permitting entry to the beach area.

In terms of security presence, 54.7% of the beaches during off-peak and almost all during peak (90.2%) observations had visible security guards (mainly car guards). Additionally, 22% of the

beaches during off-peak and 41.5% during peak observations had patrolling by private security companies. At none of the beaches were SAPS observed during the off-peak observations. More than half of the beaches had the SAPS present during peak periods. All the beaches in eThekwini Municipality had police presence during the peak periods to anticipate the crowds and traffic, since both patrols and traffic police officers were on duty. In terms of security presence, at two beaches during the peak observations, it was spotted that security guards were asleep and inebriated.

From an environmental security perspective, given that some of the beaches are in protected areas and most in ecologically sensitive sites, it is interesting to note that at only a few beaches during the off-peak observations (9.8%) had visible patrolling by KwaZulu-Natal Wildlife with none during the peak observations. At one beach a Beach Protection Unit was present. It is during peak periods that the increase in the numbers of visitors as well as consumption result in increased waste generation and concerning behaviours. These can produce negative environmental impacts. The presence of KwaZulu-Natal Wildlife can monitor impacts and address concerns on-site if need be.

In terms of lifeguards, at 31.7% of the beaches, it was observed that lifeguards and lifeguard stations with equipment were present. The number of beaches with lifeguards and lifeguard stations with equipment more than doubled during the peak observations, 78% and 75.6%, respectively. The lifeguard stations were generally of good quality and were well equipped. A further 24.4% of the beaches during the off-peak and peak observations had visible signs that shark nets were present. In terms of controlled access to the beaches, this was observed at two beaches during the off-peak observations and at 22% of the beaches during the peak observations. At only one beach was there pay-to-access requirements.

The results show that many beaches put in place or increased security and safety measures during peak times, which are good beach management practices. In terms of the researcher's ratings of safety and security aspects that were present and if applicable, most were fair and satisfactory. This was linked to issues pertaining to quality and professionalism, for example, the behaviour of security personnel and not intervening when regulations were ignored among the visitors.

All the beaches during peak and off-peak periods had some form of signage (Table 4.17). At most of the beaches the signage was the same during both the peak and the off-peak observations, with slight increases in the proportion of beaches for ‘no alcohol consumption’ (95.1% during off-peak and 97.6% during peak), ‘designated areas for swimming’ (70.7% during off-peak and 95.1% during peak), ‘no camping’ (70.7% during off-peak and 75.6% during peak), ‘no music’ (46.3% during off-peak and 53.7% during peak), ‘no braai/ grilling’ (41.5% during off-peak and 46.3% during peak), ‘no fishing’ (31.7% during off-peak and 36.6% during peak) and health risks (2.4% during off-peak and 7.3% during peak). In terms of pet restrictions, in some cases, the signs indicated that dogs on a leash were allowed. The largest increase in the proportion of beaches from off-peak to peak observations was for 'designated areas for swimming'. This links to earlier findings that the proportion of beaches with lifeguards and lifeguard stations more than doubled during the peak observations. This again links to anticipated increases in the numbers of beach users during peak periods. The proportion of beaches with signage remained the same for ‘restrictions in relation to pets’ (90.2%), ‘no bonfires’ (78%), ‘no vehicles on beach’ (63.4%), and ‘caution regarding wildlife (for example, crocodiles, sharks and hippos)’ (14.6%). Caution regarding wildlife were mainly associated with the beaches in the St Lucia estuarine area where several types of wild animals frequent the beaches.

Additional aspects covered in relation to the signage were maps of the specific beach location or coastal area (for example, maps of the Golden Mile in Durban), beach and water safety tips, no weapons permitted, no littering, no informal trading, no fireworks, no skateboards, no cycling, no diving, no jumping from pier, sleeping on beach not permitted, no dumping of waste, no urinating/ defecating and biodiversity information. In terms of the latter, some of the beaches included information on notice boards about dune forest rehabilitation programmes. In a few cases, the Blue Flag status of the beach was also clearly visible. Where permits were required (for example, to drive on the dunes or to fish), these were also included on the signs.

Table 4.17: Presence of signage aspects linked to specific CMT site/ location where interview was held (in %)

	Off-peak (n=41)		Peak (n=41)	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Presence of any form of signage	41	100.0	41	100.0
No alcohol consumption	39	95.1	40	97.6
Restrictions in relation to pets	37	90.2	37	90.2
No bonfires	32	78.0	32	78.0
Designated areas for swimming	29	70.7	39	95.1
No camping	29	70.7	31	75.6
No vehicles on beach	26	63.4	26	63.4
No music	19	46.3	22	53.7
No braai/ grilling	17	41.5	19	46.3
No/ restrictions on fishing	13	31.7	15	36.6
Caution regarding wildlife (for example, crocodiles, sharks and hippos)	6	14.6	6	14.6
Health risks	1	2.4	3	7.3

Almost all the beaches had signs that stipulated ‘no alcohol consumption’. In some cases, a fine of R1 000 for alcohol consumption was also included. However, as indicated earlier, evidence of alcohol consumption (including observing persons drinking alcohol and alcohol bottle on the beach as waste) was noted in almost all the beaches as well. Additional infringements/ violations noted at some of the beaches where signs were clearly visible with the stipulated rules/ regulations were pets on the beaches, signs of bonfires (burnt wood piles although none was seen burning during the site visits), loud music, camping, signs of as well as seeing braaing/ grilling, and land-based fishing. Also, swimming was observed in areas that were outside the designated areas (flag markers on the beach) or on beaches where swimming was not permitted. The results in terms of the signage, together with the observations that indicate that the rules/ regulations communicated in the signage present are not being complied with, suggest that beaches in KwaZulu-Natal lack the capacity to monitor compliance and effectively address non-compliances when they occur. For example, in terms of alcohol consumption specifically, alcohol was being consumed openly in the presence of the security personnel, including police officers at many sites. It is noteworthy that more violations were observed during the peak rather than the off-peak assessments.

An important aspect to note is that signage was generally generic at each of the beaches, having the same information. In most cases, the visibility of the signs were compromised in relation to the quality, specifically signs were damaged and/ or faded. Additionally, the placement of many of the signs was of concern. Most signs were not visibly placed in areas people frequent but on the change room structures and often only in or near the parking areas. In most cases, only one sign was at the location. In a few cases, the contents of the signs were blocked by overgrown vegetation. Some of the beaches had boards were information was written daily such as the water temperature, high and low tides, water quality (such as the presence of *E.coli*), surf conditions and if blue bottles (*Physalia physalis*) were present. It is notable that almost all signed were in English and isiZulu, and in some cases Afrikaans as well.

Table 4.18 indicates the presence of and rating (if applicable) of facilities and amenities at the beach locations. Almost all the beaches had parking (87.8% during off-peak and 95.1% during peak). The quality of the parking was of concern in most cases (therefore generally ratings of poor to satisfactory) since they were poorly maintained. The slight increase in the proportion of beaches during the peak observations was due to park and ride facilities being introduced. Even beaches with parking spaces restricted vehicle access during peak season. Nearby parking lots or open spaces were converted to parking areas where visitors could walk to the beaches and, in some cases, shuttle services were provided to take visitors from the beaches to the parking areas. Most beaches (87.8% during off-peak and 90.2% during peak) also had toilet facilities. The slightly more beaches that had toilet facilities during the peak season was because portable toilets were available. It is important to note that portable toilets were also available on the beaches that had built toilet structures during the peak season, to accommodate the increase in the visitor numbers. Seventy eight percent (78% for off-peak and peak) of the beaches has taps/ clean drinking water, which included outdoor shower facilities. Slightly less than half of the beach locations (48.8% for off-peak and peak) had change rooms.

In relation to food and retail aspects, most of the beaches (82.9% during off-peak and all during peak) had informal traders. Fewer beaches (39% during off-peak and 41.5% during peak) had restaurants/ eating establishments. These generally had a higher rating since they were well maintained and offered a variety of eating options at reasonable prices. One beach did have eating

establishments, but food vendors were observed during the peak observations. Some of the beaches also had designated braai areas and facilities (29.3% during off-peak and 41.5% during peak). Only a few beaches (17.1% during off-peak and 36.6% during peak) had designated entertainment areas for children. During the peak season, makeshift entertainment areas for children were put together. For the rest of the facilities, most beaches (85.4% during off-peak and peak) had designated walkways/ paving for entrances. The majority of the beaches (75.6% during off-peak and 80.5% during peak) had seating facilities (benches, chairs, etc.). Only two beaches during both observations had dedicated campsite areas. Additionally, three beaches had construction on or near the beaches.

The rating of these facilities and amenities were generally fair and satisfactory. This was linked to maintenance and hygiene issues noted. The quality of the facilities and amenities was a concern in most cases (therefore generally ratings of poor to satisfactory) since they were poorly maintained. Some of the toilets and change rooms, in particular, were not cleaned regularly and had unpleasant odours. There was also poor drainage at some beaches that can be a health hazard. Additionally, amenities were damaged, including taps (which were leaking or broken) and braai facilities. In one instance, the change room was at the location but was locked and therefore not accessible for visitors to use. Another issue that resulted in lower ratings was in relation to the number of facilities available. During the peak periods, in particular, it was clear that the facilities in most of the beaches were insufficient to accommodate the large number of visitors. For example, many vehicles were parked on verges/ curbs and private property. In coastal areas, this tends to be a cause of tension between visitors and residents (Oh et al., 2010; Penn et al., 2016). A positive observation is that a few of the beaches had facilities (for example, toilets and facilities) for persons with disabilities.

Table 4.18: Presence of and rating (if applicable) of facilities and amenities aspects linked to specific CMT site/ location where interview was held (in %)
P Present 1 – Poor 2 – Fair 3 – Satisfactory 4 – Good 5 – Excellent
* Aspect could not be rated

	Off-peak (n=41)						Peak (n=41)					
	P	**1**	**2**	**3**	**4**	**5**	**P**	**1**	**2**	**3**	**4**	**5**
Parking	87.8	14.6	19.5	43.9	9.8	-	95.1	14.6	19.5	51.2	9.8	-
Toilet facilities	87.8	17.1	39.0	22.0	7.3	2.4	90.2	17.1	41.5	24.3	8.1	2.4
Designated walkways/ paving for entrances	85.4	9.8	41.5	12.2	19.5	2.4	85.4	9.8	41.5	12.2	19.5	2.4
Informal trading *	82.9	-	-	-	-	-	100.0	-	-	-	-	-
Taps/ clean drinking water	78.0	9.8	65.9	2.4	-	-	78.0	12.2	63.4	2.4	-	-
Seating facilities (benches, chairs, etc.)	75.6	7.3	58.5	4.9	2.4	2.4	80.5	7.3	58.5	9.8	2.4	2.4
Change rooms	48.8	12.2	12.2	14.6	7.3	2.4	48.8	12.2	12.2	14.6	7.3	2.4
Restaurants/ eating establishments	39.0	-	-	17.1	9.8	12.2	41.5	-	17.1	-	12.2	12.2
Eating or braai areas	29.3	-	22.0	7.3	-	-	39.0	2.4	22.0	7.3	7.3	-
Entertainment areas for children	17.1	-	-	17.1	-	-	36.6	-	2.4	34.1	-	-
Construction on or near beach *	7.3	-	-	-	-	-	7.3	-	-	-	-	-
Designated campsite areas *	4.9	-	-	-	-	-	4.9	-	-	-	-	-

Water quality and levels of cleanliness (including litter and waste) influence visitor experience and the appeal (visual and aesthetic) of beach locations (Dodds and Holmes, 2019; Kiessling et al., 2017; Penn et al., 2016; Qiang et al., 2020; Rodella et al., 2019). As Ballance et al. (2000), Brouwer et al. (2017), Penn et al. (2016), Qiang et al. (2020) and UN (2017) indicate, the poor management of waste on beaches also has serious environmental impacts, particularly threatening fish and other marine wildlife. Furthermore, they show that there are negative economic impacts and losses

associated with litter on beaches. These are linked to solid waste management considerations at beach locations. Table 4.19 reveals that litter and waste management is a concern at most of the beaches, despite the presence of bins. At all the beaches during the off-peak and peak observations litter was present (for example, mixed, glass and plastic). Leftover food was also observed at 51.2% of the beaches during the off-peak observations and at almost all the beaches (90.2%) during the peak observations. Additionally, at some of the beaches (4.9% during off-peak and 29.3% during peak), faecal matter was observed. All beaches, with the exception of one during the off-peak observation, had bins. However, fewer beaches (31.7% during off-peak and 29.3% during peak) had designated bins for specific types of waste (recycling and separation facilities). In terms of the presence of bins, two issues are pertinent in relation to their effectiveness. Firstly, during peak seasons, in particular, there were insufficient bins at almost all the beaches. Bins were overflowing with debris/ waste, and this resulted in visitors leaving their litter where they were seated or by the bins. Thus, not regularly emptying the bins or not have enough bins was a major issue. The lack of recycling and separation facilities also raises further sustainability concerns. Secondly, some of the bins were damaged. These factors were also the reason for the poor to satisfactory rating.

Table 4.19: Presence of and rating (if applicable) of solid waste management aspects linked to specific CMT site/ location where interview was held (in %)

P Present 1 – Poor 2 – Fair 3 – Satisfactory 4 – Good 5 – Excellent

* Aspect could not be rated

	Off-peak (n=41)						Peak (n=41)					
	NA	**1**	**2**	**3**	**4**	**5**	**NA**	**1**	**2**	**3**	**4**	**5**
Presence of litter on beach (for example, mixed, glass and plastic)	100.0	4.9	22.0	46.3	14.6	12.2	100.0	17.1	46.3	4.9	24.4	7.3
Presence of bins	97.6	12.2	39.0	41.5	4.9	-	100.0	19.5	51.2	22.0	7.3	-
Presence of leftover food *	51.2	-	-	-	-	-	90.2	-	-	-	-	-
If bins are present, designated bins for specific types of waste (recycling and separation facilities)	31.7	-	-	29.3	2.4	-	29.3	-	24.4	2.4	2.4	-
Presence of faecal matter *	4.9	-	-	-	-	-	29.3	-	-	-	-	-

The literature review Chapter and earlier discussions in this Chapter highlight the importance of the sustainable management of coastal and marine resources, the very asset that CMT relies on. The observations included examining natural resources aspects as well as shown in Table 4.20. At all the beaches during both the off-peak and peak observations, the presence of alien invasive species was noted. Furthermore, at 19.5% of the beaches, during both the off-peak and peak observations, there was evidence of sewage or other drainage into water. In particular, there were exposed pipes, storm water draining directly into the ocean, and waste water discharge from eating establishments and showers. There was also presence of litter in the water (4.9% during off-peak and 61% during peak). Additionally, at 9.8% of the beaches erosion was evident. These aspects are of concern in relation to the environmental health of the coastal and marine ecosystems.

The majority of the beaches (70.7% for both off-peak and peak) had coastal/ dune forests (greenery), which are environmentally sensitive ecosystems. Furthermore, 17.1% of the beaches had protected area status. In addition to the above, it is important to note that, as discussed earlier, some of the beaches have restrictions in relation to fishing. This is intended to protect the fisheries resource base. Additionally, there are several rules and regulations as well as facilities available that are aimed at limiting disturbances and protecting beaches. However, as indicated, ensuring compliance and the quality as well as sufficiency of the facilities are of concern.

Table 4.20: Presence of natural resources aspects linked to specific CMT site/ location where interview was held (in %)

	Off-peak (n=41)		Peak (n=41)	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Presence of alien invasive species	41	100.0	41	100.0
Presence of coastal/ dune forests (greenery)	29	70.7	29	70.7
Evidence of sewage or other drainage into water	8	19.5	8	19.5
Protected area status	7	17.1	7	17.1
Evidence of erosion	4	9.8	4	9.8
Presence of litter in water	2	4.9	25	61.0

In terms of recreational activities at the beach locations on the day of the on-site assessments, Table 4.21 indicates activities that were observed and, where applicable, the average and range in relation to the number of visitors who were observed to be participating in the activity. It is important to note that the numbers reported in this study are only indicative of consumption since

there was no attempt to calculate the number of participants over a specific period. The numbers reported are what was observed at a specific time when the on-site assessments were conducted.

In all cases, the numbers of persons participating in specific activities were higher (more than tenfold for almost all cases) during peak compared to off-peak observations. Furthermore, the responses resonate with the visitor survey results presented earlier. All beach locations during the off-peak and peak observations indicated relaxation and dining/ picnic/ braai/ drinking. However, substantially more participants were observed for relaxation (an average of 199 with a range of 12 - 2 500 persons during off-peak and an average of 955 with a range of 8 – 10 000 persons during off-peak) compared to dining/ picnic/ braai/ drinking (an average of 40 with a range of 2 - 350 persons during off-peak and an average of 419 with a range of 12 – 3 000 persons during off-peak). Other main activities (with more than 90%) participation that was observed were:

- Swimming: 92.7% during off-peak and 97.6% during peak (an average of 24 with a range of 3 - 95 persons during off-peak and an average of 639 with a range of 12 – 7 000 persons during off-peak)
- Walking: 92.7% during off-peak and all during peak (an average of 23 with a range of 1 - 250 persons during off-peak and an average of 93 with a range of 3 – 2 000 persons during off-peak)
- Sports (for example, soccer, rugby and volleyball): 90.2% during off-peak and % during peak (an average of 6 with a range of 2 - 15 persons during off-peak and an average of 18 with a range of 4 - 72 persons during off-peak)
- Sunbathing: 82.9% during off-peak and 90.2% during peak (an average of 10 with a range of 2 - 199 persons during off-peak and an average of 148 with a range of 6 – 4 000 persons during off-peak)
- Picture posing/ photography: 78% during off-peak and 92.7% during peak (an average of 5 with a range of 1 - 15 persons during off-peak and an average of 19 with a range of 2 - 100 persons during off-peak)

At fewer beaches were the following activities observed during off-peak and peak times:

- Dog walking: 63.4% during off-peak and 41.5% during peak (an average of 63.4 with a range of 1-8 persons during off-peak and an average of 4 with a range of 1-8 persons during off-peak)
- Running: 61% during off-peak and 41.5% during peak (an average of 5 with a range of 1 - 33 persons during off-peak and an average of 11 with a range of 2 - 20 persons during off-peak)
- Rod fishing/ spear fishing: 36.6% during off-peak and 73.2% during peak (an average of 4 with a range of 2 - 9 persons during off-peak and an average of 10 with a range of 1 - 32 persons during off-peak)

- Cycling: 29.3% during off-peak and 36.6% during peak (an average of 5 with a range of 1 - 12 persons during off-peak and an average of 13 with a range of 1 - 35 persons during off-peak)
- Surfing: 19.5% during off-peak and 56.1% during peak (an average of 4 with a range of 2 - 7 persons during off-peak and an average of 7 with a range of 1 - 19 persons during off-peak)
- Nautical sports (for example, sailing, parasailing, water-skiing and kayaking): 9.8% during off-peak and 41.5% during peak (an average of 3 with a range of 2 - 4 persons during off-peak and an average of 5 with a range of 1 0 12 persons during off-peak)
- Scientific activities: one beach during off-peak and 9.8% during peak (an average of 2 with a range of 1-2 persons during off-peak)

Walking and running were the only activities that had fewer participants during peak compared to off-peak observations. This could be attributed to both these activities being associated with local residents who often stay away from beach locations during peak periods because of overcrowding and congestion. The following activities were only observed during peak assessments: scuba diving (12.2% with an average of 4 and range of 1 - 8), boat cruises (12.2% with an average of 2 and range of 1 - 5), bird watching (9.8% with an average of 2 and range of 1 - 4), collecting mollusc/ crustacean shells (7.3% with an average of 2 and range of 1 - 4) and snorkelling (7.3% with an average of 6 and range of 3 - 10). Whale watching was observed at one beach.

Table 4.21: Presence of recreational activities (in %) as well as the average and range of the number of participants (if applicable) at specific CMT site/ location where interview was held

	Present	Average	Range	Present	Average	Range
Relaxation	100.0	199	12-2500	100.0	955	8-10000
Dining/ picnic/ braai/ drinking	100.0	40	2-350	100.0	419	12-3000
Swimming	92.7	24	3-95	97.6	639	12-7000
Walking	92.7	23	1-250	100.0	93	3-2000
Sports (for example, soccer, rugby and volleyball)	90.2	6	2-15	95.1	18	4-72
Sunbathing	82.9	10	2-199	90.2	148	6-4000
Picture posing/ photography	78.0	5	1-15	92.7	19	2-100
Dog walking	63.4	3	1-8	41.5	4	1-8
Running	61.0	5	1-33	41.5	11	2-20
Rod fishing/ spear fishing	36.6	4	2-9	73.2	10	1-32
Cycling	29.3	5	1-12	36.6	13	1-35
Surfing	19.5	4	2-7	56.1	7	1-19
Nautical sports (for example, sailing, parasailing, water-skiing and kayaking)	9.8	3	2-4	41.5	5	1-12
Scientific activities	2.4	-	-	9.8	2	1-2
Scuba diving	-	-	-	12.2	4	1-8
Boat cruise	-	-	-	12.2	2	1-5
Bird watching	-	-	-	9.8	2	1-4
Collecting mollusc/ crustacean shells	-	-	-	7.3	2	1-4
Snorkelling	-	-	-	7.3	6	3-10
Whale watching	-	-	-	2.4	-	-

4.7. Conclusion

The primary data results (from the visitor surveys and on-site observations at selected CMT beaches during off-peak and peak seasons) were analysed in this Chapter. The variations in relation to the profiles of visitors, the activities they participate in, and the range of impacts are underscored. The findings were presented using descriptive statistics (percentages and in most cases frequencies were included as well) in Tables and Figures. The discussion of the results included reflecting on pertinent literature and assertions from previous Chapters. In relation to the on-site observations, the presentation of the results and discussion was undertaken comparatively in terms of off-peak and peak assessments. The concluding Chapter that follows includes a summary of the key findings and recommendations arising out of this study.

CHAPTER FIVE
CONCLUSION

5.1. Introduction

This study resonates with existing literature in demonstrating the socio-economic and environmental importance of CMT. The literature reviewed highlighted the increasing research that indicates that CMT is a key economic contributor as well as creating opportunities for social recreational and leisure experiences and promoting conservation and environmental awareness concerning coastal and marine natural resources. The literature also underscored increasing drivers and pressures which have several impacts, which are evident when the state of CMT sites are assessed. The responses to the impacts are important to consider as well. These considerations led to this research adopting the DPSIR framework to examine visitor profiles, consumption of coastal and marine activities, and perceptions of CMT locations in selected beaches along KwaZulu-Natal's coastline. One thousand two hundred (1 200) visitor surveys were conducted at selected beach locations in KwaZulu-Natal. Additionally, the state of the beaches were assessed using an on-site observation checklist. Forty one beaches were purposively chosen for the on-site observations during off-peak and peak periods to consider seasonality. This concluding Chapter summarises the key findings in relation to the thematic discussion undertaken in the previous chapter and which aligns to the objectives presented in Chapter One. Recommendations are thereafter discussed. Finally, overall concluding remarks are presented.

5.2. Summary of key findings

In relation to the literature review, key issues are the importance of CMT as a sub-sector of tourism. Despite the current devastating impacts of the COVID-19 pandemic, tourism's continuous and sustained growth is likely to continue once the pandemic is under control. This is also linked to tourism being viewed as a resilient sector. CMT specifically is viewed as the largest sub-sector of tourism. Several and connected activities constitute CMT. While coastal activities (such as relaxing on the beach, swimming and walking) are most prominent among visitors, research tends to focus primarily on marine activities that usually pay attention to wildlife viewing. This trend in research could be attributed to studies being biased towards assessing economic impacts and marine activities tend to have higher spend per person that coastal recreational and leisure activities

that generally do not have additional costs once on the beaches. The literature review also identified key demands on CMT locations which include the increase in the number of visitors, coastal residential and business/ industrial development, infrastructure and service provision, and fishing and other natural resource extraction activities. The sensitivity and vulnerability of coastal and marine ecosystems are noted as well, which reinforces the need for research that examines the status of CMT locations as well as visitor demands and experiences.

5.2.1. KwaZulu-Natal CMT site visitor profiles

The importance of examining socio-demographic visitor profiles is important to understanding levels of participation in and demand for CMT activities. Thus, understanding socio-demographic aspects of beach users assist in ensuring more effective management of CMT locations as well as targeted marketing, developing products and activities that respond to demands, and appropriate infrastructural development and service provision at specific sites. This study reveals similar findings to other research that indicates that diverse visitors frequent CMT locations and participate in CMT activities. In terms of the social variables, slightly more respondents were males than females. In terms of the age of the respondents, most were young or middle-aged. However, generally, different age groups visited CMT locations. In terms of education level, almost all the visitors interviewed had some form of formal qualification, with most having post-matric qualifications. This denotes that CMT location visitors are generally more educated. Linked to the educational levels were the diverse income categories, especially higher incomes, which also reflect that persons with discretionary income travel. In terms of the immediate group size, the evidence of social groups was apparent and aligned with CMT being associated with recreational and leisure activities.

Most of the respondents were overnight visitors, followed by local residents and day-trippers. It is important to note that local residents made up less than a third of the respondents. This denotes the importance of CMT locations in relation to local economic development since most of the visitors travelled from out of the city/ town/ area where the CTM site was located. In terms of the permanent place of residence of the respondents, most were South Africans, and among these most were from KwaZulu-Natal. Thus, in KwaZulu-Natal, overnight visitors and day-trippers are key

CMT source markets. In relation to the rest of the provinces, most were from Gauteng, KwaZulu-Natal's main tourism market.

5.2.2. Different types of CMT and beach activities that visitors in KwaZulu-Natal participate in and future interest

In terms of consumption, it is important to reiterate that a screening question was used to ensure that the surveys were only conducted with visitors at the beach locations who participated in or planned to participate in CMT activities on the day when approached to be interviewed. The results show that more than 80% of the persons approached participated in CMT activities. This reinforces the importance of CMT locations for local residents, day-trippers and overnight visitors.

The results indicate that visitors participate in both coastal and marine recreational and leisure activities, with coastal activities being more prominent than marine activities. Many respondents participated in multiple activities. This could be reflective of a sampling bias since beach locations were purposively selected for this study. It does reinforce the literature review as noted earlier that coastal activities are more prominent than marine activities in relation to the numbers of persons participating. However, the economic impacts may differ since marine activities are associated with higher spend patterns than coastal activities.

The main coastal activities were sand/ beach recreational activities linked with the 3S (sun, sea and sand) attractions of beaches. This was followed by pure recreational activities. The main marine activities were water sports and ocean experiences. In relation to future interest responses, it is apparent that demand is likely to increase in the future with more respondents indicating a desire to participate in CMT in the future. Three of the activities examined (wildlife tourism, recreational fishing and events) can have both land-based (coastal) and on/ in water (marine) activities/ experiences. Among these, the most prominent was wildlife tourism. Many of these activities will be associated with increased infrastructural and service provisions that need to be managed. The main non-CMT activities that respondents participated in were adventure tourism, food and wine, social (visiting friends and family) and shopping. The non-CMT activities increase visitor spend and create different types of visitor experiences.

5.2.3. Frequency of and reasons for visitation to CMT locations in KwaZulu-Natal

Frequency of visitation is indicative of demand as well as levels of satisfaction with experiences at CMT locations. Furthermore, the extent to which repeat visitation is occurring and whether new visitors are emerging is important to inform marketing strategies as well as anticipate and manage future demand. In terms of the frequency of visitation, in this study, almost all the respondents had participated previously in CMT activities in South Africa. Furthermore, almost all the respondents indicated that they would participate in beach/ CMT activities again in South Africa, which reiterated earlier responses in relation to future interest. This indicates the high demand for CMT activities and general satisfaction with beach experiences. Overall satisfaction is also evident in that almost all the respondents would advise friends, relatives or colleagues to participate in CMT activities they participated in. Thus, the results reveal the popularity of CMT activities (and destinations) in the country. It also shows that CMT has repeat visitation, which suggests satisfactory experiences. Future research should ask whether respondents visited and would visit the specific CMT destination again. This will assist in understanding location specific demands and not only national CMT visitation and future interest.

Visitor spend patterns are also important to examine demand, which needs to be sustainably managed to balance the needs and expectations of visitors, ensuring economic impacts, and retaining and protecting the CMT natural resource base. The main category of spend for most respondents was food and drink. This was followed by spend on transportation within coastal/ marine location. The main categories of spend among overnight visitors were transportation during visit (including airfares and travel within South Africa only) and accommodation. The main modes of transport while at the destination were private vehicles and other forms of paid motorised transportation. The main reason for travelling to a destination shows the extent to which tourism-related products and activities attract visitors to a specific site/ location. In this study, the main reasons to travel to the CMT location where the interview was held were holiday/ vacation purposes and participation in CMT activity in the beach/ coastal location. The importance of recreational and leisure activities is again evident.

5.2.4. Visitor levels of satisfaction with and perceptions of CMT locations in KwaZulu-Natal

Respondents were asked to rate their level of agreement with specific statements: ‘well maintained location’, ‘parking is adequate’, sufficient facilities and amenities’, ‘good refreshment areas/ food variety’, ‘this is a green location that encourages responsible environmental practices (for example, recycling)’, ‘signage to location was clear’, ‘safe location’, ‘entertainment opportunities available at the location’ and ‘the location is too crowded’. These aspects are important to consider since they affect visitor experiences at a destination and reveal perceptions of beach quality. The responses indicate that there were differences in relation to the levels of agreement for the different statements, although the responses indicate that for most respondents, satisfaction at the locations and their beach experiences were evident. The highest levels of satisfaction in terms of averages of the level of agreement were 'well maintained location' and 'signage to the location was clear'. The lowest levels were for 'entertainment opportunities available in the location' and 'sufficient facilities and amenities'.

5.2.5. The state of CMT locations in KwaZulu-Natal

On-site observations were undertaken to assess the state of CMT locations in KwaZulu-Natal in relation to aspects such as safety and security, signage, natural resources, facilities and waste management. The results from the site observations tend to reflect visitor perceptions presented earlier that at some of the sites (and therefore expressed by some of the respondents), there is room for infrastructural and service provision improvements. The importance of examining specific sites emerges, and future research should ensure that generalisations are undertaken with caution.

In terms of safety and security aspects, at most beaches there were signs of alcohol consumption. Additionally, at most of the beaches signs of drug use (injections, pipes, rolling paper, etc.) were discernible. The results indicate that more beaches had safety and security as well as the presence of lifeguards aspects covered during peak compared to off-peak periods. This indicates that seasonality does influence preparedness levels at the beaches. It also shows that the beach management do respond to anticipated increases in visitor numbers and participation in CMT activities.

In terms of signage, all the beaches during peak and off-peak periods had some form of signage. The main aspects covered in relation to signage were ‘no alcohol consumption’, ‘designated areas for swimming’, ‘no camping’, ‘no music’, ‘no braai/ grilling’, ‘no fishing’ and health risks. It was also observed that most locations had maps of the specific beach, beach and water safety tips and biodiversity information. The signage indicates an awareness of what should and should not be permitted at fragile and ecologically sensitive CMT locations. However, two major issues of concern emerged which relate to non-compliance (discussed in greater detail in the next section) as well as the visibility (where the signs were located) and quality of the signage. It is important to note that more violations were observed during the peak compared to the off-peak period when there was more security (including police) presence.

In terms of facilities and amenities, almost all the beaches had parking, toilet facilities, seating facilities and taps/ clean drinking water. However, the quality differed and was of concern. In relation to food and retail aspects, most of the beaches had informal traders while less than half of the beaches had restaurants/ eating establishments.

Visitor experiences and the attractiveness (visual and aesthetic) of beach locations are influenced by water quality and levels of cleanliness (including litter and waste). In terms of waste management, the on-site observations reveal that litter and waste management is a concern at most of the beaches, despite the presence of bins. At all the beaches during the off-peak and peak observations litter was present, and leftover food was observed at almost all the beach locations during the peak assessments. The results suggest that there are insufficient bins and that waste is not being regularly removed. Furthermore, very few beaches had designated bins for specific types of waste (recycling and separation facilities). This is a wasted opportunity to transition to more sustainable and green practices.

In terms of natural resources, at all the beaches during both the off-peak and peak observations, the presence of alien invasive species was noted. Of further concern is that at some of the beaches during both the off-peak and peak observations, there was evidence of sewage or other drainage into water, specifically exposed pipes, storm water draining directly into the ocean, and waste water discharge from eating establishments and showers. It is important to note that most of the

beaches had coastal/ dune forests (greenery), which are sensitive and environmentally sensitive ecosystems.

In terms of recreational activities at the beach locations on the day of the on-site assessments, the results reinforce the visitor survey findings that the most prominent activities persons participated in were beach relaxation and pure recreational activities. Additionally, the number of persons participating were considerably higher for all activities, with the exception of dog walking and running (mainly undertaken by local residents who keep away from the beaches because of congestion and overcrowding during peak times), during peak compared to off-peak periods. This is unsurprising given that peak seasons coincide with vacations. However, the more than tenfold increase in numbers for almost all the activities indicate the increased demands for services and infrastructure.

5.3. Recommendations

The discussion of the results in the previous Chapter and summary section above includes references to recommendations. This section provides additional recommendations as well as unpacks further some that have been alluded to previously. The results clearly indicate the recreational and leisure value of CMT locations, as asserted by Brouwer et al. (2017) and Joseph (2017). These also have economic impacts, especially in terms of generating opportunities for spend at these locations, thereby contribution to local, regional and national economic development. However, environmental impacts associated with visitor demand and use are clearly evident. The global pressures and demands outlined in relation to the DPSIR framework (Liu et al., 2019; Mandić, 2020; Ruan et al., 2019; Rudianto et al., 2019) is also apparent in the KwaZulu-Natal context. In this regard, beach management and sustainability issues emerge as key concerns. The results, especially the on-site observations in terms of the signage, indicate that there is awareness of aspects that need to be considered to restrict or limit usage and certain forms of behaviour that are likely to have negative environmental impacts and affect the experience of visitors, which can undermine repeat visitation and word-of-mouth marketing. However, compliance of rules and regulations were almost non-existent, which is a serious concern. It may be necessary to revisit the introduction of carrying capacity norms at specific beach locations, as noted by Chen and Teng (2016), Corbau et al. (2019), Han et al. (2018) and Maciel et al. (2008),

especially those with highly sensitive and vulnerable ecosystems. They also indicate the importance of examining carrying capacity to inform green development and sustainable management practices.

As indicated earlier, the management of CMT beach locations, especially during peak seasons when the number of visitors and consumption increases substantially, needs to be addressed. Management thinking needs to adopt a comprehensive approach which includes cleanliness and maintenance of the natural environment (including conservation and preservation efforts as required), infrastructure and facilities; considerations of safety and security that include problematic behaviour, health and criminality aspects; environmental awareness (including signage and information disseminated) and training; and effective and sustainable marketing of destinations. The focus on coastal and marine resources needs to be at the centre of informing management interventions, since there is widespread recognition that the deterioration of environmental quality has implications in relation to socio-economic development and impacts in these locations. Furthermore, current and emerging pressures associated with increased visitation, development demands (such as infrastructure for residential and business purposes), conservation needs, climate threats and, as COVID-19 has foregrounded, dealing with disruptions (including health risks and economic recessions/ downturns). Furthermore, demands associated with Operation Phakisa aspirations to unlock the blue economy (such as increasing CMT, oil and gas exploration, marine transport and manufacturing, and small harbours development) needs also to be considered. This is particularly important in the KwaZulu-Natal context, which is home to a major coastline with nationally and internationally recognised CMT destinations.

The high levels of non-compliance to rules and regulations need to be addressed. It is suggested that security personnel at these locations need to be trained to understand the rules and regulations. Additionally, measures to ensure compliance and deal with non-compliance need to be clearly stipulated and implemented. Environmental education and awareness programmes are also recommended, since imposing fines or other forms of punishment are unlikely to be effective given the large numbers of visitors who are non-compliant and the lack of ability currently to change behaviour. For example, all the beaches did not permit alcohol consumption, yet alcohol consumption was observed at all the beaches. The reasons for not permitting alcohol consumption

should be better communicated rather than relying on signage. The information on the signage states the rules and not the reasons for the rules, which is an important aspect of changing behaviour.

It may also be useful to rethink rules that are clearly difficult to enforce. In terms of alcohol consumption, for example, perhaps this should be permitted in designated areas, with clear instructions on how to dispose of waste generated. The management of waste generated by visitors generally is a key challenge. There are multiple aspects that need to be addressed including the waste disposal infrastructure on the beaches. This includes the number and quality of the bins, the need for increased designated bins for specific types of waste that will encourage recycling and separation at source. More effective and widespread waste management practices will be a key aspect to ensure that beach locations embrace environmentally responsible behaviours and become green recreational and leisure spaces.

Future research needs to integrate the conditions of the ecosystems themselves, such as the quality of the sand dunes, reefs, endemic species, etc. For an even more comprehensive understanding pertaining to quality issues in relation to CMT, future studies should include assessments of water quality as well, which was not included in this study. As Yustika and Goni (2019) state, water is a key issue form CMT in terms of quality, quantity and consistency, which are main considerations concerning the environmental impacts of tourism.

Additionally, as noted by Atzori et al. (2018), the extent to which beach comfort, quality and activities present influence visitor choices and experiences need to be examined in greater detail. This study contributes to the body of knowledge in relation to the examining demand (the consumption aspects linked to visitation) and on-site assessments. However, how these aspects influence CMT travel patterns and behaviour as well as choices when at a destination needs to be unpacked further.

COVID-19 has been a game-changer globally, impacting on all aspects of life, including CMT. In terms of environmental considerations, both positive and negative impacts have been noted. It is important that future research examines how the COVID-19 pandemic has impacted on beach

quality and visitor profiles in relation to CMT. This study, undertaken before the pandemic (the surveys were completed close to a year before) and the observations were undertaken just prior to the national lockdown, can serve as baseline data which provides the opportunity to examine COVID-19 impacts over time.

5.4. Concluding remarks

The contribution of this study is the assessment of the state of CMT sites in KwaZulu-Natal as well as examining visitor profiles, consumption of activities at and perceptions of these locations. Additionally, the methodological contribution is collecting primary data from visitor surveys and on-site observations during peak and off-peak periods, which provided the basis for comparisons in relation to seasonality. The mixed methods approach permitted triangulation and a more nuanced and detailed examination of the objectives of the study. In terms of the conceptual framework used to guide the research (DPSIR), some of the drivers and pressures that are related to demand and consumption at CMT locations have been unpacked. The state of CMT beaches in particular in KwaZulu-Natal has also been included, together with reflecting on current and likely impacts. Further, the consideration of resources, with the focus on management aspects in relation to recommendations, are also proposed.

This study reveals the importance of balancing the economic, social and ecological benefits in CMT locations. Additionally, the various demands and expectations often compete which, if not properly managed, can undermine the very coastal and marine natural resource base that tourism and other livelihood activities rely on. KwaZulu-Natal's coastline is one of its key socio-economic and environment resources. Specifically, coastal and marine resources provide a range of ecosystem services; they create a range of recreational and leisure opportunities for local residents and visitors that have social, health and well-being benefits; and they contribute to local economic development and job creation in terms of spend at destinations. CMT is also the province's main tourism asset, which is likely to see increased growth (especially post the COVID-19 pandemic era). However, this study indicates that the demands on CMT beach locations, which are popular destinations, need to be better managed. This is also related to the importance of the status and quality of beaches in any location to ensure socio-economic and environmental sustainability.

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APPENDIX 1

CMT VISITOR SURVEY

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

CLIENTS/ CUSTOMERS/ USERS/ TOURISTS

Date of interview: _____ Place of interview: _____

We are conducting a survey to assist us to better understand the economic impacts of Coastal and Marine Tourism in South Africa. This is a National Department of Tourism (NDT) funded project that is being undertaken by the University of KwaZulu-Natal. Please note that all answers will be kept confidential and presented anonymously to the NDT and in academic publications.

Thank you for your participation!

SCREENING QUESTION

1. Have you participated or will you participate in any coastal and marine tourism activity at this location today?

Yes	No

IF NO, KEEP A RECORD OF THE NUMBER OF THESE PERSONS ENCOUNTERED DURING THE FIELDWORK PERIOD AND DO NOT CONTINUE WITH THE INTERVIEW. IF YES, CONTINUE WITH THE SURVEY.

A. PROFILE OF RESPONDENTS

1. Are you an overnight visitor from out of town, a day visitor from out of town, or a local resident?

Overnight visitor from out of town	Day visitor from out of town	Local resident (from within town/ city municipality)

1.1. If you are a tourist (overnight out of town visitor) or day visitor, where are you from?

Outside South Africa	Country:								
South Africa	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape

2. How many persons are accompanying you who you are paying for or spending money together as a group (that is, your immediate group size) who are also participating in the coastal and marine tourism activity?

1	2	3	4	5	>5 (specify)

3. What types of coastal and marine tourism activities have or will you be participating in during this visit to this beach location (including activities participated in today)? What other types of coastal and marine tourism activities are you, in the future, interested in participating in? (Mark all that apply)

	THIS VISIT		FUTURE
	Did	Will do	Future interest
Wildlife tourism (e.g. whale watching, turtle tours, seals, dolphins)			
Recreational fishing (e.g. boat-based fishing, spear fishing, fishing competitions)			
Scuba diving/ snorkeling (e.g. shark cage diving)			
Water sports (e.g. big wave surfing, kite surfing, stand up paddle boarding (SUP), yachting, water skiing, water surfing)			
Ocean experience (e.g. cruise tourism, marinas, island tourism, shipwreck diving)			
Events (e.g. marine festivals and marine competitions such as yacht races or regattas, fishing competitions)			
Sand/ beach recreational activities (e.g. swimming, walking or running, kite-flying, beach combing, sand dune surfing)			
Coastal heritage activities (e.g. local seafood and cultural tourism, cultural history)			
Sightseeing (e.g. light house tourism, cycling, marathons)			
Educational and scientific excursions (e.g. aquariums)			
Spiritual experiences			
Pure recreational (e.g. dining out, shopping)			
Other (specify)			

4. What are/were the main activities you intend participating in/have participated in during your visit to this location other than coastal and marine activities? (Mark all that apply)

Shopping	Business	Adventure	Medical/ health	Nightlife	Sport	Visited a casino
Business	Social (VFR)	Food and wine	Theme Parks	Cultural/ heritage	Conference	Shows/ performances
Visiting natural attractions/ wildlife that were not coastal/ marine			Other (specify)			

5. How many times previously have you participated in this/ these type/s of coastal and marine tourism activity/ activities in South Africa?

None	1	2	3	4	5	>5 (specify)

6. Would you participate in this/ these types of coastal and marine tourism activity/ activities again in South Africa?

Yes	No (provide a reason)

7. Would you advise friends, relatives or colleagues to participate in this/ these type/s of coastal and marine tourism activity/ activities again in South Africa?

Yes, definitely	Possibly	No, definitely not

B. CONSUMER EXPENDITURE BEHAVIOR

1. Approximately how much money did or will you spend (inclusive of the immediate group you are spending money for) in relation to participating in coastal and marine tourism activities during this visit at this coastal/ marine location? (ALL including locals except for accommodation) *(Please write: "0" if no expenditure or "x" = I cannot recall)*.

Item	**Amount in Rands**		**None (O) or Cannot recall (X)**
	Did	**Will**	
Payment for coastal and marine tourism products/ activities (e.g. whale watching, shark diving, turtle tours, boat-based fishing)			
Food and drinks			
Coastal and marine tourism activity merchandize			
Shopping			
Transportation within coastal/ marine location			
Transportation during visit, including airfares and travel within South Africa only (**for tourists only**)			
Accommodation at coastal/ marine locations only (**for tourists only**)			
Accommodation outside coastal/ marine locations (**for tourists only**)			
Other (e.g. entertainment, visits to attractions)			
OVERALL TOTAL ESTIMATE (MOST IMPORTANT FIGURE TO OBTAIN)			

2. What was your primary/main reason for visiting this location where the coastal or marine activity you are participating in is taking place?

Participation in coastal and marine tourism activity in this beach/ coastal location	Holiday	Business	Visiting friends and relatives (VFR)	Shopping	Other (specify)

3. If an overnight visitor from out of town/ city, how many nights did/will you spend during your visit to this coastal town/ city (specify name of town where interview is being conducted) in paid accommodation (excludes VFR)?

None	1	2	3	4	5	Other (specify)

3.1. If you are an overnight visitor, how many nights will you be spending during this visit outside this town/ city but within South Africa?

1	2	3	4	5	>5 (specify)

4. How did you travel from your place of residence/ accommodation to this location today? Multiple responses permitted.

Private vehicle	Rental vehicle	Metered taxi (e.g. Uber)	Minibus taxi	Bus	Walked	Other (specify)

5. Please indicate the level of agreement with the following statements about this coastal/ marine location (not town/ city as a whole) (select one option for each variable).
KEY: 1 - strongly disagree 2 - disagree 3 - neutral 4 - agree 5 - strongly agree

STATEMENT	1	2	3	4	5
Well maintained location					
Parking is adequate					
Sufficient facilities and amenities (e.g. toilets)					
Good refreshment areas/ food variety					
This is a green location that encourages responsible environmental practices (e.g. recycling)					
Signage to location was clear					
Safe location					
Entertainment opportunities available in the location					
Location is too crowded					

D. DEMOGRAPHIC PROFILE

1. What is your age or can you provide with an age range? _____ years

18-20	21-30	31–40	41-50	51-60	61-70	70+ (specify)

2. Highest level of education completed.

No formal education	Primary completed (7 years of schooling)	Partial secondary completed (8-11 years of schooling)	Matric/ secondary completed	Certificate/ diploma
Undergraduate degree	Postgraduate degree	Other (specify)		

3. What is your monthly net income (after deduction of taxes) or can you provide us with a monthly income range?

None	R 1 – R 8000	R 8001 – R 10 000	R 10 001 – R 20 000	R 20 001 – R 30 000	R 30 001 – R 40 000	R 40 001 – R 50 000	>R 50 000 (specify)	Confidential

4. INTERVIEWER TO NOTE

Gender of respondent		Historical racial category (South Africans only)					
Male	Female	African	White	Colored	Indian	Don't know	Other (specify)

THANK YOU FOR YOUR PARTICIPATION! For queries contact:
Prof Urmilla Bob (UKZN)
bobu@ukzn.ac.za or 031 260 2501

APPENDIX 2

OBSERVATION CHECKLIST

On-site Coastal and Marine Tourism observation checklist

A. DETAILS OF LOCATION

1. Name of beach location _____
2. GPS Coordinates _____ _____
3. Date: _____

B. PHYSICAL OBSERVATION

Provide a rating of aspects linked to the coastal and marine tourism site/ location in relation to aspects tabulated below. Rating scale to be used, if applicable: 1 – Poor 2 – Fair 3 – Satisfactory 4 – Good 5 – Excellent

Aspect	If present	Rating, if applicable	Comment
Safety and security			
Presence of security guards			
Controlled access to beach			
Patrolling by South African Police Services			
Patrolling by private security company/ companies			
Patrolling by KZN Wildlife			
Presence of lifeguards			
Lifeguard station with equipment			
Signs of alcohol consumption			
Signs of drug use (injections, pipes, rolling paper, etc.)			
Presence of shark nets			
Other (specify)			
Signage			
Presence of any form of signage			
No alcohol consumption			
Designated areas for swimming			
Restrictions in relation to pets			
Caution regarding wildlife (for example, crocodiles, sharks and hippos)			
No braai/ grilling			
No bonfires			
No music			
No vehicles on beach			
No camping			
No/ restrictions on fishing			
Health risks			
Other (specify)			

Facilities and amenities			
Parking			
Toilet facilities			
Change rooms			
Eating or braai areas			
Restaurants			
Entertainment areas for children			
Informal trading			
Designated campsite areas			
Designated walkways/ paving for entrances			
Taps/ clean drinking water			
Construction on or nearby beach			
Seating facilities (benches, chairs, etc.)			
Other (specify)			
Solid waste management			
Presence of litter on beach (for example, mixed, glass and plastic)			
Presence of bins			
If bins are present, designated bins for specific types of waste (recycling and separation facilities)			
Presence of leftover food			
Presence of faecal matter			
Other (specify)			
Natural resources			
Presence of alien invasive species			
Protected area status			
Presence of litter in water			
Evidence of sewage or other drainage into water			
Evidence of erosion			
Presence of coastal/ dune forests (greenery)			
Other (specify)			

C. OBSERVATION OF RECREATIONAL ACTIVITIES

Recreational Activities	Yes/ No	Number of participants
Relaxation		
Dining/ picnic/ braai/ drinking		
Swimming		
Snorkeling		
Scuba diving		
Sunbathing		
Walking		
Dog walking		
Running		
Cycling		
Rod fishing/ spear fishing		
Nautical sports (for example, sailing, parasailing, water-skiing and kayaking)		
Boat cruise		
Surfing		
Whale watching		
Bird watching		
Scientific activities		
Collecting mollusc/ crustacean shells		
Picture posing/ photography		
Sports (for example, soccer, rugby and volleyball)		
Other (specify)		

APPENDIX 3

INITIAL ETHICS APPROVAL LETTER

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

20 September 2018

Professor Urmilla Bob 7234
Reserach Office
Westville Campus

Dear Professor Bob

Protocol reference number: HSS/1596/018
Project Title: Development framework to assess the economic impacts of coastal and marine tourism

Full Approval – Expedited Application

In response to your application received 6 September 2018, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Professor Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committe

/pm

cc Supervisor/Project Leader: Professor Bob
cc School Administrator: Ms Marsha Manjoo

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Chair)
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
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Website: www.ukzn.ac.za

APPENDIX 4

AMENDED ETHICS APPROVAL LETTER

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

11 November 2019

Professor Urmilla Bob (7234)
Reserach Office
Westville Campus

Dear Professor Bob,

Protocol reference number: HSS/1596/018
Project Title: Development framework to assess the economic impacts of coastal and marine tourism

Approval Notification – Amendment Application

This letter serves to notify you that your application and request for an amendment received on 21 October 2019 has now been approved as follows:

- Inclusion of students:
  - Ms Rivoni Gounden (215013579)
  - Mr Ntwademela S Perry (219098034)
  - Mr Dinolen Gounden (214564359)
- Change in Research Methodology (Inclusion of Observation)

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form; Title of the Project, Location of the Study must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

Best wishes for the successful completion of your research protocol.

Yours faithfully

.....
Dr Shamila Naidoo (Deputy Chair)

/ms

Cc Ms Suveshnee Munien
cc Supervisor/Project Leader: Professor Bob
cc School Administrator: Ms Marsha Manjoo

Humanities & Social Sciences Research Ethics Committee
Dr Rosemary Sibanda (Chair)
Westville Campus, Govan Mbeki Building
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