

SUSTAINABLE MARINE TOURISM PROGRAMME

RESEARCH REPORT

Economic valuation of marine boat-based tourism in Plettenberg Bay, South Africa

December 2020



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Contributing Organisations: Nature's Valley Trust, Nelson Mandela University, Bluepebble Sustainability Solutions, Future Works Sustainability Consulting



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The authors thank the three boat-based tourism operators that voluntarily participated in this study and allowed us to engage with their clients and staff. Further details on each of these companies can be found on their websites:

Ocean Blue Adventures: <https://oceanadventures.co.za>

Ocean Safaris: <https://oceansafaris.co.za>

Offshore Adventures: <https://offshoreadventures.co.za>

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Non-disclosure

A non-disclosure agreement was signed with each participating operator to obtain confidential data on their operating expenses and staffing. This agreement resides with Nature's Valley Trust and only core team members have had access to this information. This information remains in confidence.

Conflict of Interest Statement

No conflict of interest exists with any of the authors of this report.

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Cover Photograph : A humpback whale (*Megaptera novaeangliae*) shows off the white underside of its tail flukes in Plettenberg Bay, South Africa. This behaviour is known as sailing, whereby the animal is lying vertically, head down, in the water column. Photographer - Gwenith Penry.

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Abbreviations

BBWW	Boat-based Whale Watching
DEA	Department of Environmental Affairs (now formally DEFF)
DEFF	Department of Environment Forestry and Fisheries (previously DEA)
EBSA	Ecologically and Biologically Significant Area
GDP	Gross domestic product
GVA	Gross Value Added; represents the monetary value of the local economy.
HS	High Season (for whale watching and seal viewing)
IBBA	Important Bird and Biodiversity Area
LS	Low Season (for whale watching and seal viewing)
MPA	Marine Protected Area
NDA	Non-Disclosure Agreement
NGO	Non-governmental organisation
NMU	Nelson Mandela University
NVT	Nature's Valley Trust
RSA	Republic of South Africa
SABWWA	South African Boat-based Whale Watching Association
SIC	Standard Industrial Classification
SMT	Sustainable Marine Tourism
TSA	Tourism Satellite Accounts
UK	United Kingdom
US\$	United States Dollar
WIOMSA	Western Indian Ocean Marine Science Association
WTTC	World Travel and Tourism Council
WWF-SA	World Wildlife Fund for Nature, South Africa
ZAR	South Africa Rand

Definitions

Billion

One thousand multiplied by one million, or 10^9 (1 000 000 000).

Carrying capacity

Carrying capacity is defined as the amount of use/effort that can be applied to the marine resources, without causing significant negative impacts that would ultimately threaten the longevity of the sector. Carrying capacity is dependent on various factors, one being that improved management can lead to increased carrying capacity.

Direct contribution to GDP

That expenditure made by a participant in relation to an activity, for example the sale of tickets to travel on a whale watching vessel. It includes the cost of food, accommodation, and travel to participate in a marine tourism event.

Direct contribution to employment

The number of direct jobs within tourism in Plettenberg Bay as a result of marine tourism. It includes associated employment in accommodation, food and transportation sectors as a result of marine tourism.

Gross domestic product (GDP)

The total value of all final goods and services produced within an economy, within a given period.

Indirect expenditure

This is generated when the business that earns the direct expenditure then spends that revenue on goods and services as inputs to their activity.

Indirect contribution

The contribution to GDP and jobs of the following three factors:

- **Capital Investment:** Includes capital investment spending by all industries directly involved in Travel and Tourism. This also constitutes investment spending by other industries on specific tourism assets such as new visitor accommodation and passenger transport equipment, as well as restaurants and leisure facilities for specific tourism use.
- **Government Collective Spending:** Government spending in support of general tourism activity. This can include national as well as regional and local government spending. For example, it includes tourism promotion, visitor information services, administrative services and other public services.
- **Supply Chain Effects:** Purchases of domestic goods and services directly by different industries within Travel and Tourism as inputs to their final tourism output.

Induced contribution

The broader contribution to GDP and employment of spending by those who are directly or indirectly employed in the Travel and Tourism sector.

Local visitor

In this report, local visitors are South Africans visiting Plettenberg Bay and partaking in marine boat-based tours.

Standard Industrial Classification

A system of classification of economic activity.

Tertiary sector

The tourism industry falls within the tertiary sector. The tertiary sector consists of all service industries such as transport, communication, trade, health, education and administration.

Trillion

One million multiplied by one million, or 10^{12} (1 000 000 000 000).

Type II multiplier

The total impact on GDP and jobs. It is the sum of direct, indirect, and induced effects.

Executive Summary

Globally, ocean-based tourism is valued at ZAR 111.5 trillion (US\$ 7.2 trillion) (WWF 2016). In South Africa, coastal tourism contributes approximately ZAR 27.2 billion (US\$ 1.8 billion) and has been estimated to create 594,000 jobs (UNOPS, 2011). Coastal tourism is thus an important contribution to economic development and poverty alleviation in South Africa. Global research has also shown that marine boat-based tourism can be more consumptive than previously thought (Corkeron 2004, Garrod and Fennell 2004, Corkeron 2006, Higham, Bejder et al. 2014). When not managed responsibly, research has shown that the marine boat-based tourism sector has several negative ecological impacts (Parsons 2012, Bearzi 2017).

In Plettenberg Bay the long-term sustainability of the marine boat-based tourism sector remains uncertain, since the ecosystem's carrying capacity, impact of existing operations, and local socioeconomic contribution remains undetermined. In response to this uncertainty, the Sustainable Marine Tourism Programme has established a scientific baseline assessment for the sector operators and the marine resources, upon which the sector is dependent. **The risks to the sustainability of the ecosystem, marine species, and local economy thus need to direct the sustainable management of this sector, before the allocation of further operating permits are considered for Plettenberg Bay.**

The purpose of this study was to assess and establish an economic baseline for the marine boat-based tourism sector in Plettenberg Bay. Once the total economic benefits are understood, these can inform management decisions to support the sustainability of the sector. The three objectives of the study are:

- Assess the total economic value of marine boat-based tourism in Plettenberg Bay.
- Assess the economic value distributed throughout the relevant stakeholders.
- Provide recommendations on how to improve value distribution of the economic benefits across stakeholders in order to improve support for biodiversity conservation.

The study shows that the sector results in a direct expenditure of ZAR 143.3 million (US\$ 9.3 million) per year in Plettenberg Bay. This includes expenditure on marine tours, food and accommodation, local transport, marine curios, and organised tour packages.

The additional indirect (ZAR 156.2 million; US\$ 10.1 million) and induced (ZAR 71.7 million; US\$ 4.7 million) expenditure brings the **total economic value of marine boat-based tourism expenditure to ZAR 371.2 million** (US\$ 24.1 million) per year, and assuming ZAR 371.2 million was all spent in Plettenberg Bay, **this approximates to 6% of the total tourism spend in Plettenberg Bay every year.** This study shows that 0.4% of households (or 251 local people) in Plettenberg Bay benefit directly and indirectly from employment in the marine boat-based tourism sector.

Much of this tourism trade would not have come to Plettenberg Bay had these marine boat-based tourism activities not been present. **Almost half (49%) the visitors interviewed in this study reported coming to Plettenberg Bay primarily to participate in the marine boat-based tourism activities on offer.**

Creating the right balance between the number of permitted boat-based whale watching operators in Plettenberg Bay, the economic benefit these bring to the town, and the impacts to marine species, is critical and can now be informed by sound scientific research. This study highlights the importance of the marine boat-based tourism sector to the local and national economy. It is with the above in mind that the following specific recommendations are made to improve economic value distribution across stakeholders in support for biodiversity conservation:

- a) **The operators need to work together with local tourism providers to establish/improve local organised tour offerings, specifically focusing on the foreign tourism market and those coming on tour packages who do not stay in Plettenberg Bay after a marine boat-based activity.** Pairing local service suppliers with marine tours will diversify available tourism experiences and result in longer stays by visitors. This can further sustain the sector and potentially lead to an increase in the total economic value of the sector in Plettenberg Bay, without requiring growth in the number of permit holders or visitors.
- b) **The operators need to work together as a sector and consolidate a sustainability strategy to further demonstrate sustainability performance.** Improved performance against operator codes of conduct and the availability of monitoring results would show their goodwill and their support for biodiversity conservation. This would in turn strengthen their position in the green/sustainable tourism market.
- c) **Plett Tourism and the accommodation bureau should improve the marketing of marine boat-based tourism in Plettenberg Bay,** highlighting operator's sustainability performance to improve market share in the green/sustainable tourism sector, indirectly supporting biodiversity conservation. This can lead to higher occupancy on marine tours and greater local induced effects.
- d) **The Bitou Municipality should review the Central Beach boat launching facility, together with operators, to identify improvements and create a world-class tourism facility.** Taking small steps and as a start, infrastructural maintenance and security can be improved.
- e) Through strengthening sustainability performance and thus market position, **the operators should identify and provide further local economic development opportunity, through for instance providing sustainability training for employees and increasing community outreach and support programmes.** Reasonable targets could be set by the operators themselves. This will further increase their market share in the social impact and responsible trade market.

1. Introduction

The Sustainable Marine Tourism (SMT) Programme, implemented in Plettenberg Bay (Garden Route, South Africa) by the Nature's Valley Trust (NVT) and Nelson Mandela University (NMU), was designed to provide a first assessment of the socio-ecological and economic environment in which the South African boat-based marine tourism sector currently operates. Since the formalisation of permitted whale watching in South Africa in 1998 there have been no follow up studies to measure the efficacy of the permit regulations to minimise disturbance to marine life, determine the current adherence to the permit regulations, or to quantify the economic value of the industry, especially to small coastal towns like Plettenberg Bay that depend on the tourism sector. This economic valuation of marine boat-based tourism in Plettenberg Bay (herein referred to as 'this study') forms part of the larger SMT Programme and aims to quantify the economic contribution of the sector, using Plettenberg Bay as a case study.

There are several risks to marine ecosystems, species, and the local economy, of an unsustainable marine boat-based tourism sector. These risks need to be determined and mitigated for effective management of the sector. A clear understanding of the current status of, and interactions between, the social, ecological and economic factors of the sector is critical for its long-term sustainability and will enable the carrying capacity of Plettenberg Bay to be estimated. This will inform future decisions on growth (i.e. through the allocation of more operating permits), which is currently being encouraged based only on economic imperatives, with little consideration of the ecological and social components of the system as a whole. Uncapped, unregulated, and uninformed growth could be detrimental to the marine life on which the sector is dependent, and subsequently affect the people who rely on it.



Figure 1: Two large humpback whales being viewed by a permitted whale watching vessel in Plettenberg Bay, South Africa (Photographer: Gwenith Penry).

In this report the aim is to assess and establish an economic baseline of the marine boat-based tourism sector in Plettenberg Bay. This will be done by quantifying the contribution of the sector to the local economy, the benefits derived by operators, and employment opportunities created locally. All of these are currently unknown for most areas in South Africa where marine boat-based tourism occurs, and it is intended that this study can be replicated elsewhere.

The results and recommendations of this study can inform future management decisions, at both the local and national levels. Together with knowledge on the **current socio-ecological impacts and practices, this economic valuation can direct the long-term sustainability of the sector, allowing for informed decisions to be made regarding proposed expansion of the sector.**

1.1 Global whale watching

Globally, ocean-based tourism was valued at ZAR 111.5 trillion (US\$ 7.2 trillion¹) (WWF 2016). Global research has shown that marine boat-based tourism can be more consumptive than previously thought (Corkeron 2004, Garrod and Fennell 2004, Corkeron 2006, Higham, Bejder et al. 2014) and has been shown to have several negative ecological impacts when not responsibly managed (Parsons 2012, Bearzi 2017). The long-term sustainability of the boat-based tourism sector in Plettenberg Bay is uncertain because the ecosystem's carrying capacity and impact of existing operations remains undetermined. In response to this uncertainty, the SMT Programme aims to establish a scientific baseline for both the sector operators and the marine resources upon which it is dependent.

1.2 Whale watching in South Africa

The answer to the question as to whether whale watching is being sustainably operated in South Africa, remains unknown. South Africa has experienced a steady growth of the boat-based whale watching sector since its formalisation in 1998. Dolphin watching is closely linked to whale watching, with many tours including sightings of both; in this report the term 'whale watching' thus includes dolphin watching. The sector stimulates local economies along the coastline and if responsibly managed, provides a sustainable livelihood to coastal communities.

Commercial whale watching began in South Africa in the early 1990s and was formalised and nationally permitted in 1998, when 20 permits were allocated by the Department of Environmental Affairs (DEA) to operators permitting close encounter tours. The Department of Environment, Fisheries and Forestry (DEFF) currently administers and issues the permits and regulates the sector. The sector is represented by the South African Boat Based Whale Watching Association (SABBWWA) which was established to encourage self-regulation within the sector and as a united organisation to liaise with government. In 2011 there were 23 available permits, and by 2017 this number had increased to 40, of which 31 are currently awarded (DEA 2018).

In 2014 the South African government implemented an initiative to stimulate economic growth in the marine environment. Known as Operation Phakisa (translated from Sesotho as 'hurry up'), the Oceans Economy Lab in this initiative is geared towards unlocking the economic potential of marine and coastal resources by identifying sectors that can be expanded rapidly.

Operation Phakisa has five main workstreams, one of which is to increase tourism activities in the marine sector. This economically driven operation has to date taken little consideration of the socio-ecological impacts of uncapped growth in the marine boat-based tourism sector. More specifically, no impact assessments of the whale watching sector have been done to assess the efficacy of the current permit regulations to minimise disturbance to the whales and dolphins, neither has the economic value of the sector to local economies been established.

Estimations of the total contribution of coastal resources to the South African economy are in the order of ZAR 91.2 billion (US\$ 5.9 billion) (UNOPS 2011). Of that, coastal tourism contributes 30% (ZAR 27.2 billion; US\$ 1.8 billion) and has been estimated to create 594,000 jobs (UNOPS 2011) and therefore potentially makes an important contribution to economic development and poverty alleviation in South Africa. The specific contribution of marine boat-based tourism to the South African national economy and job creation remains undetermined.

¹ The foreign exchange rate used at the time of writing this report was US\$ 1 = ZAR 15.40.

1.3 Whale watching in Plettenberg Bay

Plettenberg Bay is one of the smallest designated whale watching areas and is one of few that has two active, permitted whale watching companies. This, together with the fact that tourism and whale watching are well-established in Plettenberg Bay, provides for an ideal case study for marine boat-based tourism in South Africa. This case study provides insight into the economic value of the marine-based tourism sector in the town, and its contribution to the socioeconomic upliftment of the town; both are currently unknown.

The town of Plettenberg Bay (Bitou Municipality) is an important part of the coastal economy in South Africa. Although it had a permanent population of only 70,000 (2002 estimate), it was estimated by Mollat (2004) that Plettenberg Bay attracts over 10 times that number in local and foreign visitors. Tourism spending makes up 107% of the town's Gross Value Added² (GVA) (Plett Tourism 2019). As a small, scenic town with little industry, Plettenberg Bay thus relies heavily on tourism. Marketing is dependent on the award-winning beaches, clean seas, and regular sightings of whales and dolphins that continue to attract local and foreign visitors.



Figure 2: Visitors on a permitted whale and dolphin watching trip in Plettenberg Bay viewing common dolphins (*Delphinus delphis*) as they travel through the bay in search of their main prey species, sardine and anchovy (Photographer: Gwenith Penry).

The boat-based whale watching sector is the most established of the formal marine tourism sectors in Plettenberg Bay. At the time of this study there were eight marine tourism operators active in Plettenberg Bay (Table 1), who targeted the viewing of marine species including whales, dolphins, seals, sharks, and fish.

Table 1: Marine tourism operators in Plettenberg Bay (2019/20).

No.	Operator	Permit/Regulation Status	Target Species
1.	Ocean Blue Adventures	DEA permitted whale watching operator.	<p>Whales: southern right (<i>Eubalaena australis</i>), humpback (<i>Megaptera novaeangliae</i>), Bryde's (<i>Balaenoptera edeni brydei</i>)</p> <p>Dolphins: bottlenose (<i>Tursiops aduncus</i>), humpback (<i>Sousa plumbea</i>), common (<i>Delphinus delphis</i>)</p> <p>Seals: Cape fur seal (<i>Arctocephalus pusillus pusillus</i>)</p>

² Gross Value Added (GVA) is the value of production after deducting inputs and raw materials, whereas tourism expenditure is the total amount spent on tourism.

No.	Operator	Permit/Regulation Status	Target Species
2.	Ocean Safaris	DEA permitted whale watching operator.	Whales: southern right, humpback, Bryde's Dolphins: bottlenose, humpback, common Seals: Cape fur seal
3.	Offshore Adventures: a) Swim-with-seals b) Free-dive Marine Safaris	CapeNature approval to operate in marine protected area (MPA), otherwise unregulated.	Seals: Cape fur seal Sharks: blue (<i>Prionace glauca</i>) and mako (<i>Isurus oxyrinchus</i>), white (<i>Carcharodon carcharias</i>) Fish; small pelagic fish like sardine (<i>Sardinops sagax</i>) and anchovy (<i>Engraulis capensis</i>)
4.	Pro Dive	CapeNature approval to operate in MPA, otherwise unregulated in terms of marine life encounters.	Seals: Cape fur seal Reef fish
5.	Dolphin Adventures Kayaking	Formally non-permitted and unregulated.	Dolphins: bottlenose, humpback, common Seals: Cape fur seal
6.	Ocean Sailing Charters	Formally non-permitted and unregulated	Seals: Cape fur seal
7.	Enrico's and Plett Fishing Charters	Fishing permits required and catch limits set by Department of Agriculture, Fisheries and Forestry, while other marine life viewing is unregulated and non-permitted.	Reef fish such as Red roman (<i>Chrysoblephus laticeps</i>) Deep sea and bottom fish , such as hake (<i>Merluccius capensis</i> and <i>M. paradoxus</i>) and gurnard (<i>Chelidonichthys capensis</i>)
8.	Plett Seal Adventures	CapeNature approval to operate in MPA, otherwise unregulated in terms of marine life encounters.	Seals: Cape fur seal

Of the eight marine tourism operators active at the time of the study (Table 1), three boat-based operators participated voluntarily in the study. These included the two permitted whale watching operators, Ocean Blue Adventures and Ocean Safaris, and the first Plettenberg Bay based swim-with-seals operator, Offshore Adventures. The diving operator and fishing charter operator were invited to participate and the fishing charter operator allowed limited access to their clients for questionnaires.

Plett Seal Adventures, the second seal swim operator that was recently established (early 2020) was not included in the study, owing to the completion of data collection prior to their operation becoming active. The seal swim sector was not yet formalised in South Africa at the time of writing this report, in that it did not require a government issued permit to operate. Permission from local authorities is, however, required, and in Plettenberg Bay, permission from CapeNature was required for the seal-swim sector to operate within the Robberg MPA. These have been obtained by Offshore Adventures, Plett Seal Adventures and Pro Dive.

The marine boat-based sector in Plettenberg Bay operates year-round, with a peak in whale sightings during the winter months when southern right and humpback whales migrate to the South African coastline. The three dolphin species and the Bryde's whale (Table 2) are resident and thus available for viewing year-round.

Table 2: Marine species viewed in Plettenberg Bay, the platforms from which they can be viewed, and peak observation months for each.

Species	Platform (Vessel, Land, Swim with)	Peak Observation Months
Humpback whale	Vessel, Land	June - April
Southern right whale	Vessel, Land	June - October
Bryde's whale	Vessel	Mar – May, but avail year-round
Bottlenose dolphin	Vessel, Land	January - December
Humpback dolphin	Vessel, Land	January - December
Common dolphin	Vessel	Dec – May
Cape fur seal	Vessel, Swim with	September - April

1.4 Research Project – Aim, Objectives, and Outputs

This study aims to answer economic questions related to marine boat-based tourism in Plettenberg Bay. These answers will inform and improve the management and sustainable use of the marine resources in Plettenberg Bay.

This report presents the research process and results aligned with the following objectives to achieve Output 6 (items a to c) of the SMT Programme contract (WWF-Nedbank Green Trust, 2017):

- Objective 2a): Assess the total economic value of marine boat-based tourism in Plettenberg Bay.
- Objective 2b): Assess the economic value distributed throughout the relevant stakeholders. This should include a description of the different stakeholders both demographically and geographically.
- Objective 2c): Provide recommendations on how to improve value distribution of the economic benefits across stakeholders in order to improve support for biodiversity conservation.

The marine boat-based tourism sector is ultimately dependent on the year-round availability and occurrence of whales, dolphins, seals and sharks in the bay, and up to 10km offshore (i.e. within the fuel range and tour time (<2hrs) of the tourism vessels). The ecological impacts of the sector are currently being assessed as part of the larger SMT Programme (Figure 3, Objective 1). The results, the first of their kind in South Africa, will establish a scientific baseline to inform current and future management of the sector and the key marine species.

This study has two outputs:

- a) Research report, including a summary of tourism data, non-disclosure agreements, and operator questionnaire templates.
- b) One peer reviewed publication on the economic value of marine boat-based tourism in Plettenberg Bay.

This research report fulfils the requirements of output a) above.

2. Project Context

This economic valuation of marine boat-based tourism in Plettenberg Bay forms part of the Sustainable Marine Tourism (SMT) Programme (also referred to as ‘the Programme’) being implemented in Plettenberg Bay (Garden Route, South Africa) by the Nature’s Valley Trust (NVT) and Nelson Mandela University (NMU). The three-year SMT Programme was supported and funded by the WWF-SA Nedbank Green Trust, and the Institute for Coastal and Marine Research at Nelson Mandela University. The SMT Programme was initiated in 2018 and is due for completion in March 2021.

There are three main objectives to guide the assessment and development of sustainable marine boat-based tourism in Plettenberg Bay (Figure 3). Objective 2 of the Programme aims to evaluate the economics of the marine boat-based tourism sector in the Garden Route, using Plettenberg Bay as a case study. Recommendations to improve support for marine biodiversity protection in Plettenberg Bay by raising awareness of the value of the biodiversity to the community are also made. It is intended that these recommendations are applied to the boat-based whale watching (BBWW) sector on a national scale.

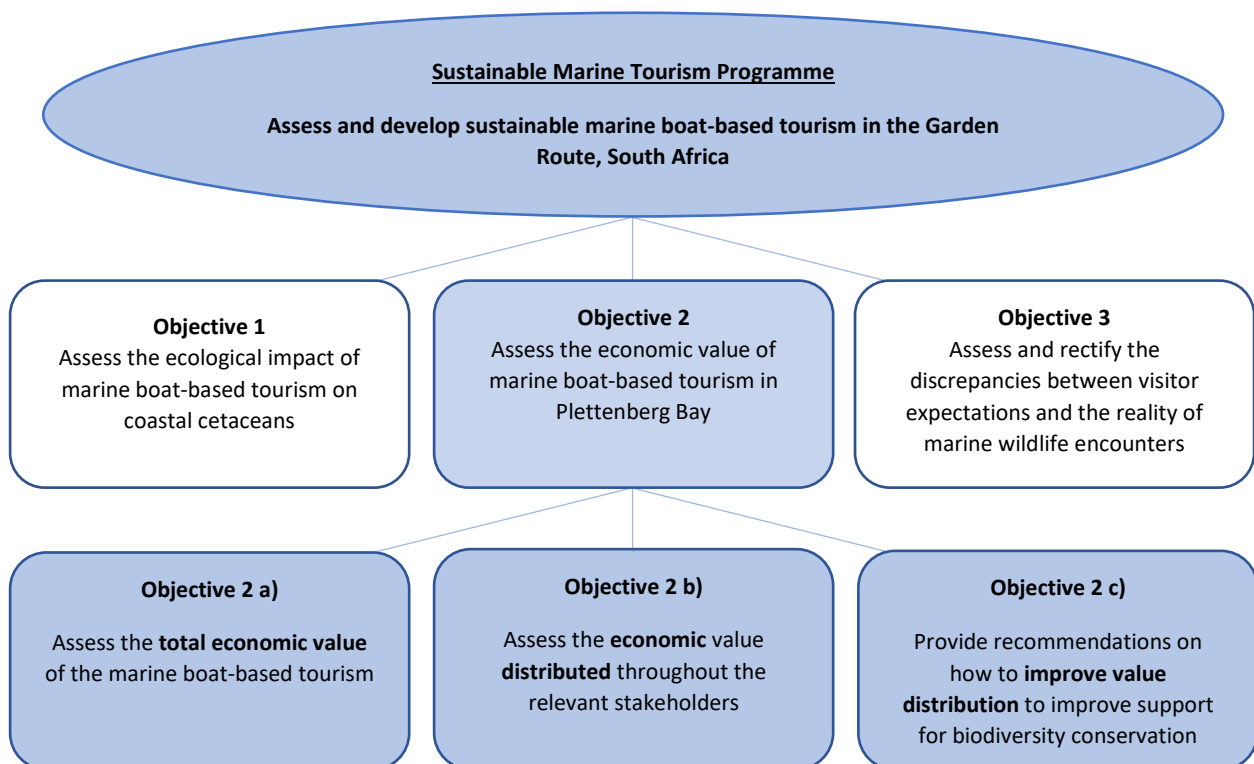


Figure 3: Sustainable Marine Tourism Programme – Structure and Objectives.

The team involved in the study includes:

- Dr Gwenith Penry (Nelson Mandela University) and Dr Mark Brown (NVT and UKZN): Project directors - oversight, monitoring and evaluation.
- Jonathan Kingwill (Bluepebble Sustainability Solutions): Project management, stakeholder engagement, research, analysis, and reporting.
- Prof. Amanda Lombard (Nelson Mandela University): Project review.
- Myles Mander (Future Works Sustainability Consulting) and Dr Douglas Crookes (Independent Consultant): Resource economists – economic modelling, data analysis and project review.
- Chanel Hauvette: Research assistant, stakeholder engagement and data collection.

3. Case Study Context

Marine boat-based tourism in Plettenberg Bay consists of marine adventure tours into the coastal waters of the bay, making use of Central Beach (the only available municipal launch site) as the boat-launching site. The marine tourism operators also use Central Beach as their base of operations. During a boat-based marine tour, whales, dolphins, and seals are viewed from operator boats by visitors, focusing mostly on the near-shore area between Robberg MPA and Keurboomstrand. The study area is thus the marine area extending from the Robberg Marine Protected Area (MPA) in the south-west to Tsitsikamma MPA in the north-east (Figure 4).



Figure 4: Map of Plettenberg Bay showing important conservation designations as detailed by the key (inset bottom left). The bay is flanked by two Marine Protected Areas (MPAs); Robberg MPA (managed by CapeNature) to the west and the Tsitsikamma MPA (managed by South African National Parks) to the east. Inset Right: Provincial boundary map of South Africa with the location of Plettenberg Bay indicated in red.

This bay is recognised as an Important Bird and Biodiversity Area (IBBA) by BirdLife South Africa and was accepted as a Hope Spot, by Mission Blue, Sylvia Earle Alliance in December 2014 (<https://www.plett-tourism.co.za/events/plett-hope-spot/>). These designations were made due to the diverse marine life, thriving marine tourism activities, scientific research, and the number of non-governmental organisations (NGOs) conducting environmental education in the area. Plettenberg Bay also falls within the proposed Tsitsikamma – Robberg Ecologically and Biologically Significant Area (EBSA) because of its important inshore reefs, vulnerable, fragile, and sensitive species, and is rich in top predators (sharks, cetaceans and marine mammals). Given the diversity within the EBSA, there are many ecotourism operators (whale watching, fishing charters, etc.) and marine researchers working in this area (<https://cmr.mandela.ac.za/EBSA-Portal/South-Africa/Tsitsikamma-Robberg>). The study area also includes MPAs that form part of the broader Garden Route National Park and Garden Route Biosphere Reserve.

4. Research Methods

The study was implemented over four phases, spanning 21-months (Figure 5).

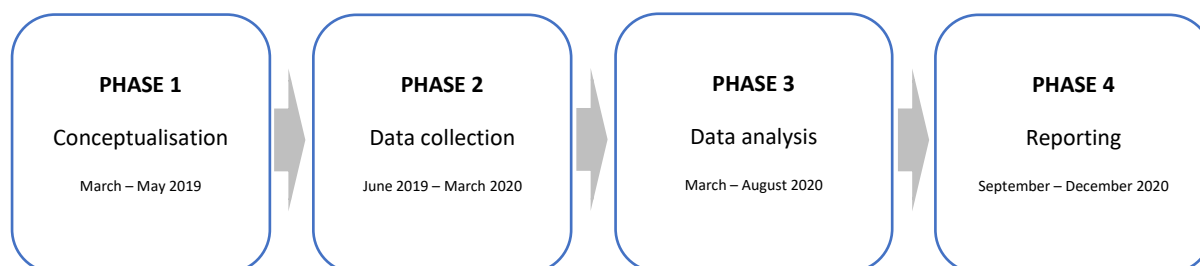


Figure 5: Research process and phases.

Phase 1: Conceptualisation

The research questions for this study were used to develop the questionnaires and data analysis. The research questions were thus answered through the analysis of data collected in the questionnaires. The stakeholders were identified through deciding on the key role-players in/related to the sector. All marine boat-based operators were invited to participate, and a non-disclosure agreement (NDA) was formalised with each participating operator to protect sensitive business information.

The stakeholders that benefit from the outputs of this study, and the broader findings of the SMT Programme in the marine boat-based tourism sector in Plettenberg Bay include:

- **Visitors** stand to benefit from an improved experience of viewing the spectacular marine species in the bay, and the service provided by marine boat-based operators.
- **Marine boat-based operators** benefit through gaining a better understanding of their sector, the economic value and the how they can improve their sustainability performance.
- **Employees** working for the operators, on either a full-time or part-time basis, benefit through gaining employment and training in the sector.
- **Other tourism operations** in Plettenberg Bay benefit through providing supporting services (maintenance, fuel, boat supplies, etc.) to the operators, as well as offering ancillary amenities to visitors, including accommodation, food and other tourism products.
- **Bitou Municipality**, as the local municipality, benefits through fees paid by each operator for services at the launch site. The municipality thus gains a better understanding of the sector and the importance of providing services at the Central Beach Public Launch Site in the form of launch control (Port authority), and related launch facilities (water supply, electricity, refuse removal, beach parking, and security).
- **Plett Tourism**, as the local governmental linked tourism promotion agency benefits through understanding the economic value of the marine tourism sector and how to improve its marketing thereof.

- **Department of Environmental Affairs (National)** (now Department of Environment, Forestry and Fisheries or DEFF) will have an improved understanding of the economic value of the marine boat-based tourism sector and how to improve decision-making related to the sustainability impacts/risks related to expanding marine boat-based tourism.
- **CapeNature** will gain through improved awareness of the use of marine resources in the bay and the related economic value, as relevant to the management of the Robberg Marine Protected Area and Robberg Nature Reserve.
- **Western Indian Ocean Marine Science Association (WIOMSA)** will benefit from this case study to inform other similar marine tourism operations in the Western Indian Ocean region.
- **Residents** of Plettenberg Bay stand to benefit indirectly from the long-term and sustainable operation of local marine boat-based tourism, an important component of the local tourism economy.

Phase 2: Data collection

Data were collected from visitors and participating marine boat-based tour operators. Data were collected through questionnaire surveys (Appendix B), focusing on both quantitative and qualitative data from both visitors to and operators on Central Beach, between March 2019 and March 2020 (pre-Covid-19 pandemic in South Africa). Data from visitors were gathered by NVT research assistant (Chanel Hauvette), in collaboration with participating operators. Visitors were approached before or after their excursion and sampled at random. The research assistant went through and completed the questionnaire together with the visitors. Data from operators were obtained through a focused meeting with the project researcher (Jonathan Kingwill).

Phase 3: Data analysis

Questionnaire data were used to analyse the direct and indirect value of the marine boat-based tourism sector in Plettenberg Bay. Data analysis was performed by a resource economist (Dr Douglas Crookes) to determine the total economic value of the sector, the economic scale derived from making use of the marine resource, and the local socioeconomic benefits of this sector. Detailed notes on the economic analysis are included in Appendix A of this report.

Specific research questions addressed in the data analyses include:

- Where have the visitors come from?
- Where do visitors spend their money?
- What are the visitor numbers for marine boat-based tourism in Plettenberg Bay?
- What is the total economic value of marine boat-based tourism in Plettenberg Bay?
- What is the distributed value amongst stakeholders?
- How many jobs and population in Plettenberg Bay are supported through employment?

Phase 4: Review

The results presented in this report were reviewed by the resource economist on the study team (Myles Mander), the project reviewer (Prof. Amanda Lombard), as well as participating marine boat-based tourism operators. This report was reviewed with the future publication of a peer reviewed journal article in mind, and targets researchers, stakeholders and funders alike.

5. Results

What must be avoided at all cost, is the over-exploitation of marine resources by over-allocating marine tourism permits, potentially resulting in the proverbial ‘killing of the goose that lays the golden egg’. The risk lies in increasing the number of permitted and non-permitted operators in Plettenberg Bay, without understanding the past, current and future ecological impacts. Although short-term economic gains may be achieved, the threat to the long-term sustainability of the sector remains uncertain.

This study is a first step in determining the broader value of a healthy marine environment to Plettenberg Bay, i.e. through incorporating further aspects like property value, aesthetic value, sense of place, ecosystem services, etc. into a full environmental economic valuation. Such a broader environmental economic assessment remains a future research opportunity that can make use of the economic baseline established in this study. This study contributes towards a better understanding of the marine boat-based tourism sector and supports the long-term operation of whale watching in Plettenberg Bay and, in turn, the rest of South Africa. The intention is that the design, methods, and results of this study are replicated along the coast of South Africa.

Between June 2019 and March 2020, a total of 369 questionnaire surveys were conducted on visitors to one of the three boat-based tourism activities detailed above. Ten incomplete questionnaires were rejected, resulting in a total of 359 valid questionnaires being available for analysis.

5.1 Where have the visitors come from?

Figure 6 shows that **85% of visitors were foreign and** 15% were from South Africa (defined as ‘local’).

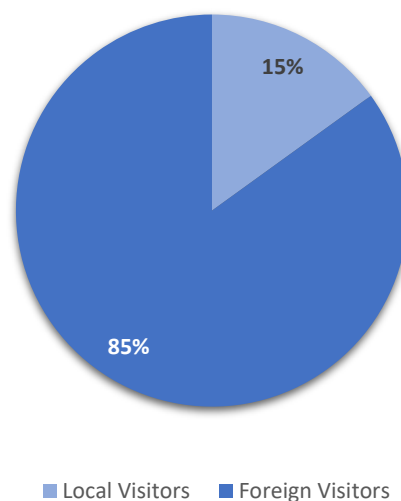


Figure 6: Foreign and local South African visitors participating in marine boat-based tourism in Plettenberg Bay.

Visitors from Germany, the Netherlands, South Africa, the United Kingdom (UK), and Israel were the top five countries that participated in marine boat-based tourism activities during the research period (Figure 7).

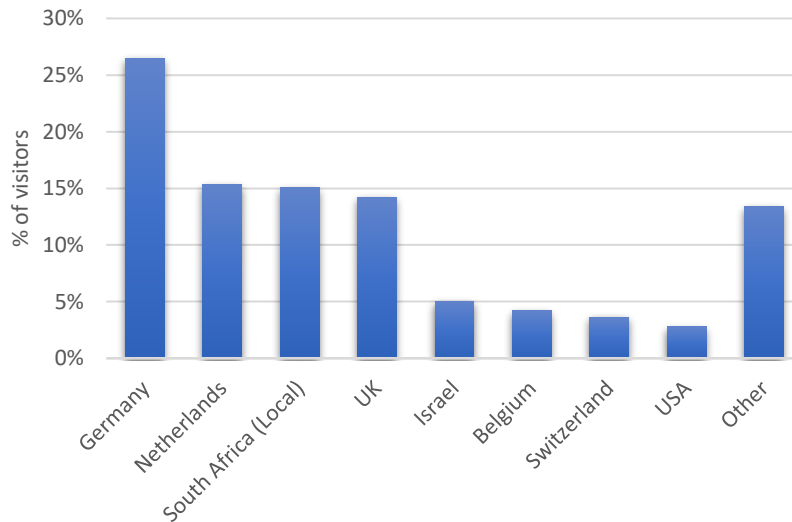


Figure 7: Nationalities of visitors that participated in marine boat-based tourism activities.

The percentage of visitors that came to Plettenberg Bay, specifically for a marine boat-based tourism activity, is shown in Figure 8.

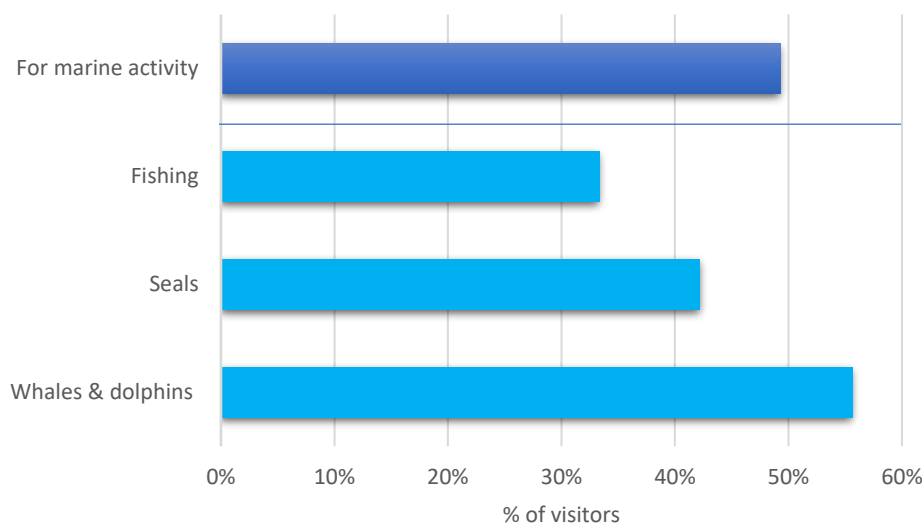


Figure 8: Percentage of visitors who came to Plettenberg Bay specifically for a marine boat-based tourism activity (dark blue) and the breakdown of these visitors by activity (light blue).

Of the 359 visitors interviewed, 176 (49%) came to Plettenberg Bay specifically to participate in a marine boat-based tourism activity. Of those, 56% came for whale watching, 42% for seal viewing and 33% for fishing charters.

5.2 Where do visitors spend their money?

Visitor spend was not only the direct marine tour ticket cost, but also the amount spent on food, accommodation, transport, curios, and, if not self-drive, the cost of the tour package. The majority (38%) of visitors spent between ZAR 2,000 (US\$ 130) and ZAR 5,000 (US\$ 325) per trip (Figure 9), although quite a sizeable portion (24%) spent over ZAR 10,000 (US\$ 649) per trip to Plettenberg Bay.

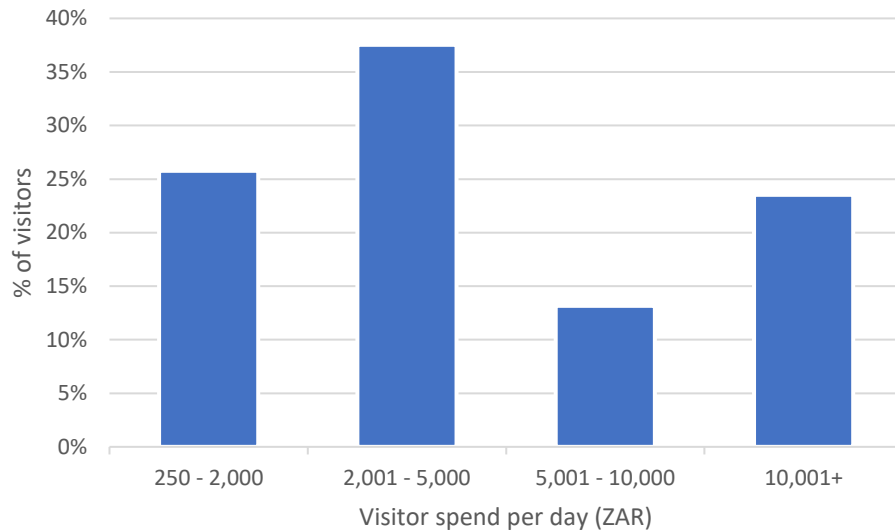


Figure 9: Percentage of visitor spend per trip to Plettenberg Bay.

The average spend per person participating in a boat-based marine tour (per trip to Plettenberg Bay) was ZAR 9,649 (US\$ 627), excluding the money spent on marine curios. However, when the data were separated into foreign and local (South Africa) categories, the **average spend per person for foreign visitors (ZAR 10,436 (US\$ 678) per person) was double** that of local visitors (ZAR 5,100 (US\$ 331) per person) (Figure 10).

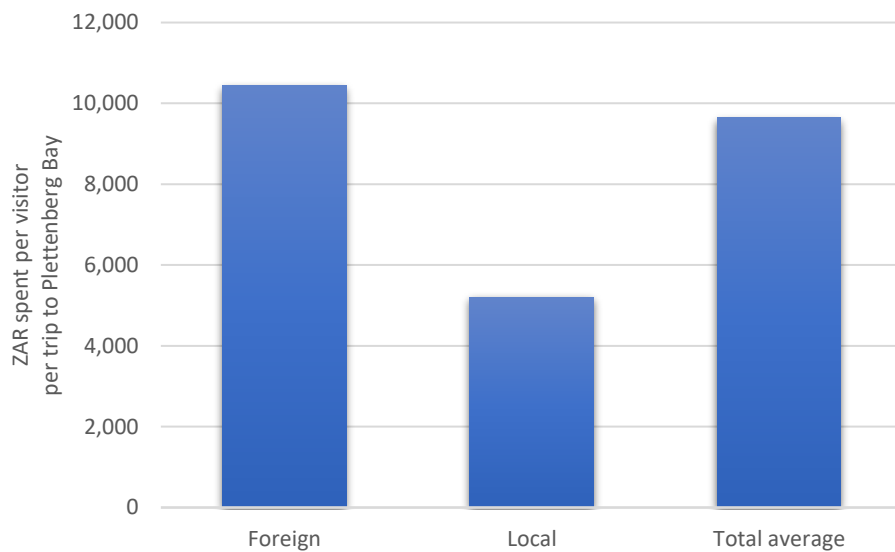


Figure 10: Average spend per person: foreign versus local South African visitor spend, and total average spend with all visitors combined.

When comparing the difference in visitor spend on organised tours versus self-drive holidays; **visitors on organised tours spent more than double (69%)** than those on self-drive tours (31%) (Figure 11).

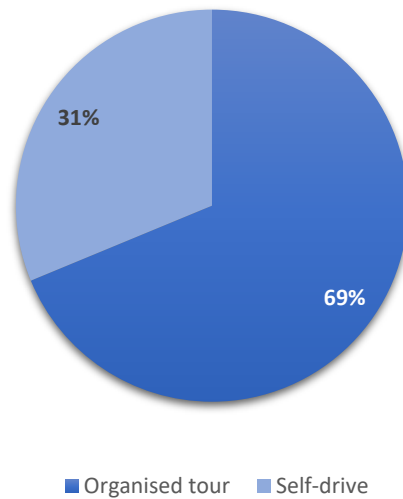


Figure 11: Percentage of visitor spend on organised tours versus self-drive.

In total, 23% of visitors came on a boat-based marine activity that was part of an organised tour package. Of those it was evident that **96% of the direct expenditure incurred was on the tour package** itself. The ticket cost and food and accommodation comprised a relatively small portion of total expenditure.

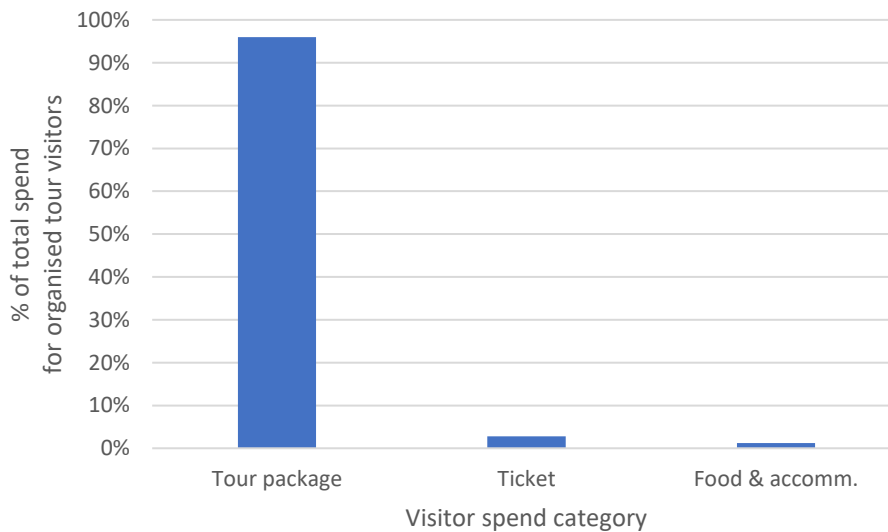


Figure 12: Percentage of visitor spend on different tourist activities for those coming to Plettenberg Bay as part of an organised tour.

The organised tour package price generally included food and accommodation costs, so the spend on food and accommodation shown in Figure 12 represents additional expenditure on these items and was therefore likely to be much lower than for the self-drive option.

Of the visitors on an organised tour, 49% of them stayed outside of Plettenberg Bay, only coming into town for the activity itself.

It was also evident that **transportation to and from Plettenberg Bay makes up 52% of the expenditure on self-drives** (Figure 13). The ticket price of the marine boat-based tourism activities was the next

most expensive item for self-drive visitors (21%). Accommodation (15%) and food (10%) and transportation within Plettenberg Bay (2%) were relatively low. Food and accommodation spend per person, as expected, was proportionally much higher than for organised tours that included food and accommodation in the tour price.

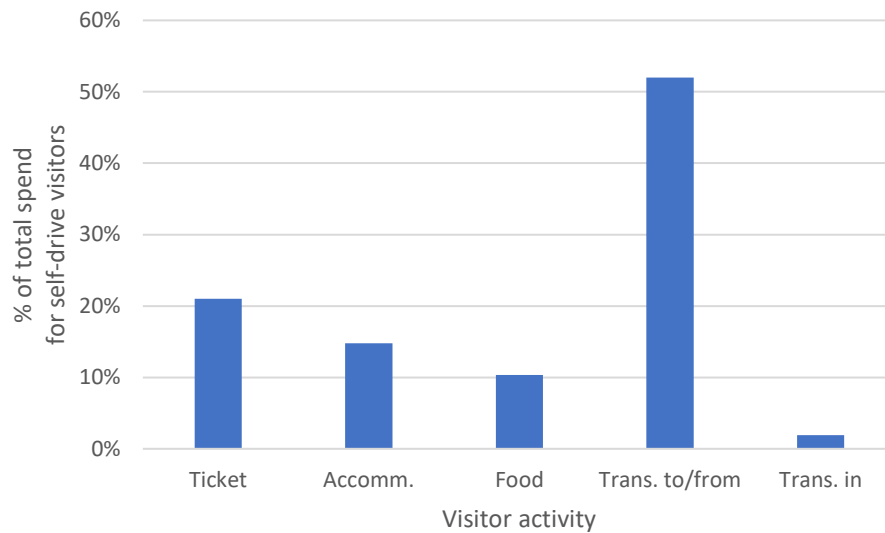


Figure 13: Percentage of visitor spend on different tourist activities for those coming to Plettenberg Bay as part of a self-drive option.

Of the visitors who stay in local accommodation before and/or after the tourism activity, **the majority (59%) stay in Plettenberg Bay town**, with 15% staying in the surrounding areas. The rest (26%) stay outside the Plettenberg Bay area (Figure 14).

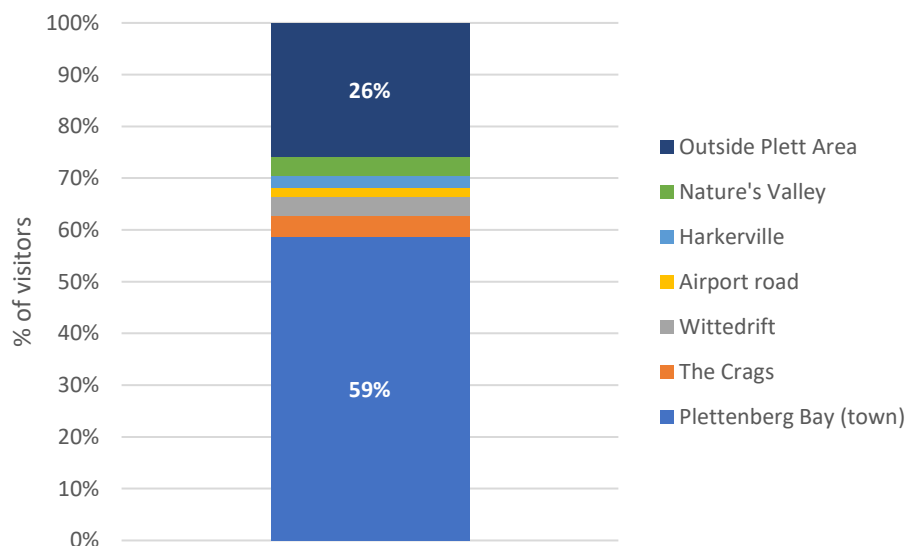


Figure 14: Location of visitor's accommodation.

The study showed that **74% of visitors coming to Plettenberg Bay** to participate in a marine boat-based tourism activity **contribute directly to food and accommodation establishments in the greater Plettenberg Bay area.**

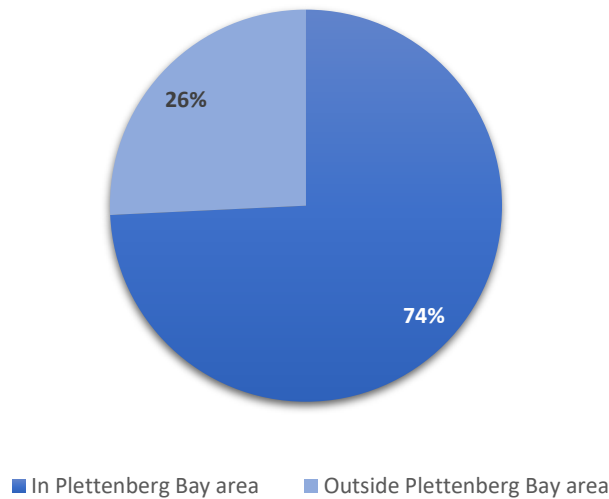


Figure 15: Percentage of visitors to Plettenberg Bay staying within or outside the Plettenberg Bay area.

Most (35%) visitors stayed in budget (self-catering or Air B&B) accommodation (Figure 16). Three-star accommodation was the next most frequently used (20%), followed by private accommodation (16%). Four-star accommodation was only used by 13% of visitors, followed by backpackers (9%) and 5-star (7%).

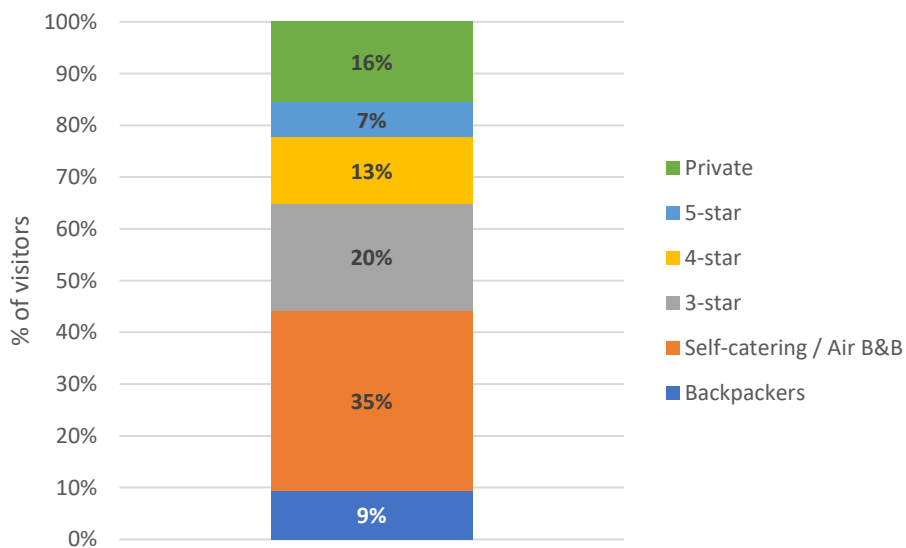


Figure 16: Accommodation type and class used by marine boat-based tourism visitors.

5.3 What are the visitor numbers for marine boat-based tourism in Plettenberg Bay?

The total annual number of visitors participating in marine boat-based tourism was based on the average annual records for 2018 and 2019, obtained from launch data at Beach Control (Bitou Municipality) at the Central Beach Boat Launching Site. Based on data provided by participating operators, the annual average occupancy rates (2019) for whale watching was 54% and for seal

viewing was 40%. This was determined by taking the occupancy rates during the high and low seasons for each activity and weighting them according to the number of months in each season³.

The average annual visitors (for 2018 and 2019) coming to Plettenberg Bay for a marine related activity was 27,710 and this study shows that the largest proportion (80%) of such visitors participated in boat-based whale and dolphin watching (Figure 17). The total number of visitors compares well with the estimate of 25,000 whale watching visitors per year, as reported by Plett Tourism (2016).

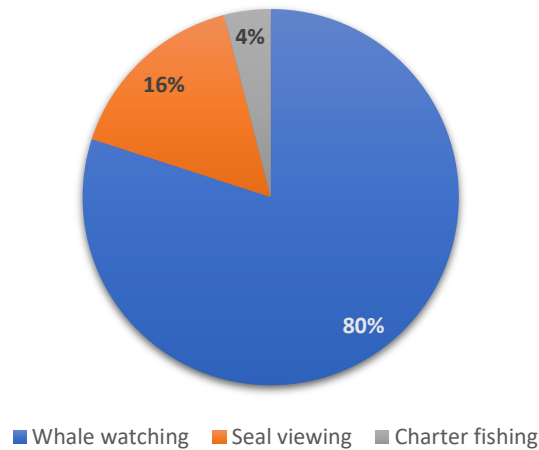


Figure 17: Estimated percentage of visitors participating in whale watching, seal viewing and charter fishing.

5.4 What is the total economic value of marine boat-based tourism in Plettenberg Bay?

The average number of visitors participating in a marine boat-based tourism activity was used to calculate a total value of direct and indirect expenditure per year, on marine boat-based tourism in Plettenberg Bay, including whale and dolphin watching, seal viewing and fishing charters.

Tourism impacts economies through three interrelated impacts, i.e. direct, indirect, and induced effects. Direct impacts affect the tourism sector directly and include tour operators, hotels, and travel agents. Indirect effects relate to the impacts due to capital investment and supply chain effects for e.g. vessel servicing and maintenance, and fuel stations (see definitions). Induced effects relate to expenditures related to those employed directly or indirectly in tourism and have an impact at the household level (e.g. one person employed in a tour company supports four dependents at home). The three impacts and structure of the tourism sector determine the sector’s impact on the area.

This study shows that the benefits of direct expenditure on marine boat-based tourism accruing to Plettenberg Bay was **ZAR 143.3 million (US\$ 9.3 million)** (Table 3) for the 2019/20 annual period. The indirect and induced expenditure was calculated using type II multiplier factors, as detailed below.

Table 3: Marine boat-based tourism annual spend in Plettenberg Bay in 2019/20.

No.	Item	Value (ZAR million)	Comment
1.	Marine tour ticket values	22.7	All operators are locally based, so all benefits accrue to Plettenberg Bay.
2.	Food and accommodation	17.2	26% stay outside of Plettenberg Bay.

³ High season (HS): whale watching May - November (6 months); seal viewing September – April (8 months).

No.	Item	Value (ZAR million)	Comment
3.	Transport within Plettenberg Bay	1.6	-
4.	Marine curios	3.5	Marine-based.
5.	Tour packages (accommodation and food)	98.3	Approximately 50% of those on tour stay outside Plettenberg Bay. This was only the marine component of the tour package.
6.	Direct expenditure	143.3	Sum of items 1 to 5 above; used direct multiplier x 1.0 (refer Appendix A, b)).
7.	Indirect expenditure	156.2	ZAR 143.3 million x indirect multiplier 1.09 (refer Appendix A, b)).
8.	Induced expenditure	71.7	ZAR 143.3 million x induced multiplier 0.5 (refer Appendix A, b)) (WTTC 2020); includes household feedback.
9.	Total expenditure	371.2	ZAR 143.3 million x type II multiplier 2.59 (refer Appendix A, b)) (WTTC 2020).
10.	% total benefits (marine boat-based tourism) accruing to Plettenberg Bay.	39%	ZAR 143.3 million Plettenberg Bay based marine boat-based tourism expenditure / ZAR 371.4 million countrywide expenditure x 100.
11.	% direct expenditure of tourism spend in Plettenberg Bay.	6%	ZAR 143.3 million divided by ZAR 2.4 billion* x 100 * Plett Tourism, 2016.

The total direct expenditure represents 39% of the total national expenditure on marine boat-based tourism expenditure (Direct + Indirect + Induced). The rest represents a leakage to other parts of South Africa and even internationally. Direct expenditure on marine boat-based tourism, after considering expenditure on accommodation, food and transport, was approximately 6% of total direct tourism spend in Plettenberg Bay.

5.5 What is the distributed value amongst stakeholders?

This study shows (Table 3 and Figure 18) that more than two thirds (ZAR 98.3 million (US\$ 6.5 million) or 69%) of the visitor spend accrues to organised tour packages. It is estimated that 50% of the organised tour visitors stay outside of Plettenberg Bay. The visitor spend on tickets for marine boat-based tourism in Plettenberg Bay is ZAR 22.1 million (US\$ 1.4 million) or almost 16% of total visitor spend. Food and accommodation attributes ZAR 17.2 million (US\$ 1.1 million) or 12%, with the remainder spent on curios (2%) and local transport (1%).

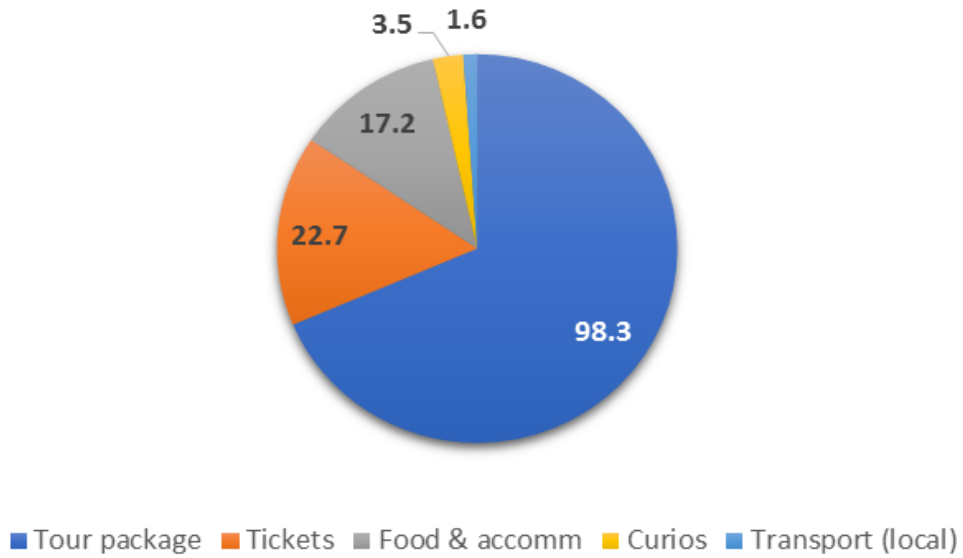


Figure 18: Distributed value (ZAR million) of direct expenditure.

The three operators who willingly participated in this study provided confidential data on their operating costs (Figure 19). The cost accounts vary for each operator, since the target market, business management, and the scale of each business varies. The costs accounts were proportioned and average.

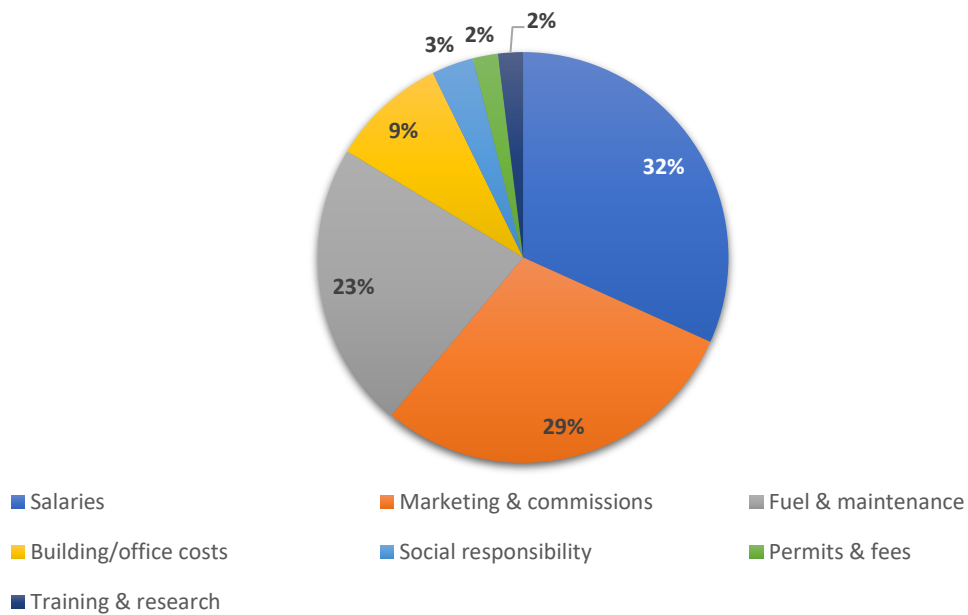


Figure 19: Distribution of marine boat-based tourism operator costs; combined costs from three operators.

On average 32% of their operational costs were attributed to salaries, the highest expenditure account in the business. Marketing and commissions amounted to 29%, with fuel and motor maintenance accounting for 23%, and 3% donated to social responsibility projects. A total of ZAR 518,000/year (US\$ 33,636/year) is donated by these operators to *Die Sterreweg*⁴ and House of Hope⁵ in the New

⁴ *Die Sterreweg* is a day care centre for special needs children in New Horizons. It provides services to special needs children and their families, and also functions as a resource centre for the broader community.

⁵ The House of Hope is in an NGO in Kranshoek that focuses on providing meals to young children.

Horizons and Kranshoek communities, respectively. The spend on permits and fees, and training and research support is 4% in total. The remainder of operational costs were attributed to office and administration costs.

5.6 How many jobs and people are supported in Plettenberg Bay?

Marine boat-based tourism activities in Plettenberg Bay contribute to poverty alleviation (Table 4). With multiplier impacts on hotels, food, transport, and the indirect and induced impacts on employees and their dependents, **0.4% of the Plettenberg Bay population benefit from employment generated by marine boat-based tourism activities.**

Table 4: Socioeconomic benefits from marine boat-based tourism in Plettenberg Bay.

No.	Item	Description	Value
1.	Direct employment	Full-time equivalent jobs created within participating operator businesses.	31.25
		Participating operators' proportion of marine tourism sector in Plettenberg Bay.	85%
		Total estimate of full-time jobs created by marine boat-based tourism in Plettenberg Bay.	37
2.	Indirect and induced multiplier	Sourced from Department of Tourism (2017), page 71 and averaged from multiplier of between 2 and 3.	1.5
3.	Indirect and induced employment	Indirect and induced employment = direct employment x multiplier of 1.5. Indirect employment: jobs that are created to supply and support travel and tourism organisations. Induced employment: jobs created as a result of direct/indirect employee's spending money in Plettenberg Bay.	55.5
4.	Total employment	Total employment = direct employment x multiplier of 2.5.	92.5
5.	Average number of dependents	Per staff member for participating operators.	1.71
6.	Total number of dependents	Benefiting from employment in marine boat-based tourism in Plettenberg Bay.	158
7.	Total no. of people	Benefiting from employment in marine boat-based tourism in Plettenberg Bay.	251*
8.	Total population	Bitou Municipality, 2018.	61,645
9.	% population	Benefiting from employment in marine boat-based tourism in Plettenberg Bay.	0.4%

* Includes all backward linkages to other sector employment.

Marine boat-based tourism activities in Plettenberg Bay contribute to poverty alleviation through job creation and supporting dependents (Table 4 and Figure 20). The marine boat-based tourism sector in Plettenberg Bay creates 37 full-time and direct employment opportunities. Indirect and induced employment (including food and accommodation, transport, and other tourism operations) is estimated at an additional 55.5 employment opportunities. Examples of these are additional employment in the boat servicing sector, employment growth as a result of the construction of new hotels and retail shops supporting tourism activities (indirect effects), and the jobs created by employees in these sectors spending more money locally (induced effects). In total these 92.5 employment opportunities support an estimated 158 dependents in Plettenberg Bay.

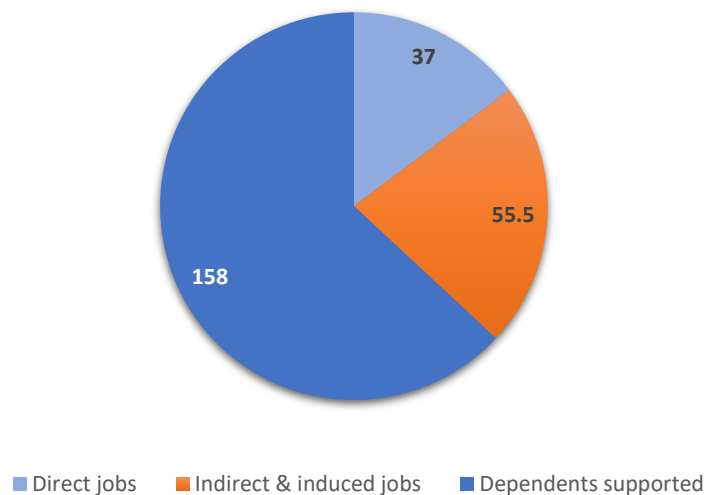


Figure 20: Number of jobs (direct and indirect) and dependents supported by marine boat-based tourism in Plettenberg Bay.

6. Conclusions and Discussion

Marine boat-based tourism makes a substantial contribution to the economy in Plettenberg Bay. This study shows that 0.4% of households (or 251 local people) in Plettenberg Bay benefit from employment generated by the marine boat-based tourism sector and related tourism activities. Much of this tourism trade would not have come to Plettenberg Bay had these marine boat-based tourism activities not been available. Almost half the visitors (49%) interviewed in this study reported coming to Plettenberg Bay primarily to participate in the marine boat-based tourism activities on offer.

This study provides, for the first time, some answers to the research question: what is the economic value and contribution of the marine boat-based tourism sector in Plettenberg Bay? The study shows that the sector results in a direct expenditure of ZAR 143.3 million (US\$ 9.3 million) per year in Plettenberg Bay. This includes expenditure on marine tours, food and accommodation, local transport, marine curios and organised tours packages. A standard industry multiplier was used to calculate the additional indirect (ZAR 156.2 million; US\$ 10.1 million) and induced (R71.7 million; US\$ 4.7 million) expenditure. The total expenditure is thus ZAR 371.2 million (US\$ 24.1 million), and assuming ZAR 371.2 million was all spent in Plettenberg Bay, this approximates to 6% of the total tourism spend in Plettenberg Bay every year. When viewing these results in context, the total economic value of marine boat-based tourism of ZAR 371.8 million (US\$ 24.1 million), was compared with other studies.

Two methods were used to validate the above results:

Method 1: The South African Boat Based Whale Watching Association (SABBWWA 2016) estimated that the direct expenditure on BBWW in South Africa was ZAR 120 million (US\$ 7.8 million) between 2008 and 2016. There were 17 operators active, with two in Plettenberg Bay. Assuming equal visitor expenditure for each of the operators, this gives an approximate estimate of boat-based whale watching for Plettenberg Bay of ZAR 14 million (US\$ 0.9 million) (2008 – 2016). This was a very crude method of estimating total value and represents a lower bound or limit yet provides a comparative result.

Method 2: Mollat (2004) reported that Plettenberg Bay receives between 700,000 and 950,000 visitors each year. Plett Tourism (2019) report a total direct expenditure on tourism related activities of

ZAR 2.4 billion (US\$ 0.2 billion). With marine boat-based visitors comprising an average of 27,700 per year, assuming each visitor spends on average the same, whether marine based or other, this gives a range of potential direct expenditure on marine boat-based tourism of between ZAR 70 million (US\$ 4.5 million) and ZAR 95 million (US\$ 6.2 million). The results of this study show expenditure in Plettenberg Bay (ZAR 143.3 million; US\$ 9.3 million) is above this range.

Findlay (1997) estimated that the value of land-based whale watching in Hermanus through visitor expenditure was ZAR 5 million (US\$ 0.3 million) in 1995, but this was before boat-based whale watching was formalised. Hara et al. (2003) estimate that the contribution of boat-based whale watching to business turnovers in Gansbaai was ZAR 3.2 million (US\$ 0.2 million) per year. It is not clear what the trends are between 2008 and 2020, but **average spend per visitor in South Africa reported in Hoyt (1995) and O'Connor et al. (2009) increased by 12.2% per annum between 1994 and 2008 (US\$ values). Much of this increase would have been due to the legalisation and marketing of boat-based whale watching.** In addition, whale watching visitors in South Africa (including both foreign and local visitors) have also increased from 25,000 in 1994 to 567,367 in 2008, a 25% annual increase over that period (O'Connor et al. 2009), including both land-based and boat-based whale watching.

These results show how the value of marine boat-based tourism has increased in South Africa over the past 20-25 years.

This study focused on calculating the contribution that the marine boat-based tourism sector brings to Plettenberg Bay. In doing so, ways to increase these benefits have also been identified. This study shows that **26% of the visitors did not stay in Plettenberg Bay.** Benefits to Plettenberg Bay would thus be increased by providing tour operators with suitable accommodation within the Plettenberg Bay area and encouraging them to stay for other purposes (tourism, restaurants, cultural experiences, etc.). This would result in organised tours making use of food and accommodation facilities and increasing the local benefits. This is particularly the case for **foreign visitors on organised tours, who spend double that of local visitors.** Another way in which benefits may be increased, is through **increased marketing of marine boat-based tourism products to foreigners on organised tours.** Marine tourism operators in Plettenberg Bay may also consider offering organised tours, as the visitor numbers and spend is clearly higher in the organised tour category.

Data collected from operators during this study showed that the average annual occupancy rates for whale watching was 54% (75% in high season, 32% in low season) and for seal viewing was 40% (50% in high season, 20% in low season). The precautionary approach to any further allocation of permits should be adopted because this study strongly indicates that additional operators will result in lower occupancy rates across all operators, in turn leading to economic strain on the existing companies. Instead, local and national government should help the existing operations to increase occupancy, improve sustainability and education, and improve supporting services to the industry.

Questionnaire feedback from visitors suggests that they are environmentally aware, and appreciative of having their expectations of the marine tour activity managed/explained. There was a positive response to the new educational boards erected by the larger SMT programme.

Details on the specific value distribution amongst stakeholders was beyond the funding scope of this study. The study focused on the local economic benefits in Plettenberg Bay and did not investigate the value accrued outside of the local economy.

This study represents an important step in improving our understanding of the economic value of marine boat-based tourism in Plettenberg Bay. This, coupled with the results of the ecological research being conducted in the broader SMT Programme, is an important milestone for Plettenberg Bay, given

that it provides an ecological and socioeconomic baseline against which the future of the sector can be monitored and referenced. This study can be expanded on in the future to investigate more specific value distribution amongst stakeholders.

It should finally be noted that data was collected for this study prior to 27 March 2020 and thus precedes the negative impact that the Covid-19 pandemic has had on the marine tourism sector in Plettenberg Bay. The economic valuation and estimation of the number of direct and indirect jobs created by the sector are thus indicative of the benefits prior to March 2020. Given the significant change that has occurred as a result of the Covid-19 pandemic, this research does not reflect the situation after March 2020.

7. Recommendations

The protection and ongoing monitoring of marine species in Plettenberg Bay is essential for the long-term survival of the marine boat-based tourism sector. This sector currently contributes 6% towards local tourism spend and benefits 0.4% of the population in Plettenberg Bay. Striking the right balance between the number of government-issued whale watching permits in Plettenberg Bay, the economic benefit these bring to the town, and the impacts on marine species, is critical. The number of permits issued should be based on scientific research and a precautionary approach, and not on economic incentives alone.

In addition to the number of permitted operators, the number of excursions and the manner in which the sightings take place in the bay, global climate change effects and other rapidly changing environmental factors, contribute towards the behaviour of marine species. Exactly how this will impact the marine boat-based tourism sector in Plettenberg Bay remains uncertain. What is certain, however, is that responsible practices that adhere to recommended codes of conduct will reduce the negative impacts on marine species by reducing disturbance in the bay. Many operators have improved their operations through the years, and some have gone so far as to subscribe to international accreditation like the Blue Flag Programme. Such operations need recognition. Operators themselves also need to continually support and interrogate their operations towards improving sustainability performance and reporting. This in itself provides a market edge opportunity, that can lead to a strengthened market position. A suitable certification system and auditing process, has been identified by the SMT Programme and is aimed at the whole industry in South Africa, and not just Plettenberg Bay.

The role of marine boat-based tourism in Plettenberg Bay is now better understood. This study highlights the importance of this sector in the local economy and creating local jobs. It is with the above in mind, and the original aims of the study, that the following specific recommendations are made towards improving biodiversity conservation and socioeconomic benefits locally:

- a) The operators need to work together with local tourism providers to establish/improve local organised tour offerings, specifically focusing on the foreign tourism market and those coming on tour packages who do not stay in Plettenberg Bay after a marine boat-based activity. Pairing local service suppliers with marine tours will diversify available tourism experiences and result in longer stays by visitors. This can further sustain the sector and potentially lead to an increase in the total economic value of the sector in Plettenberg Bay, without requiring growth in the number of permit holders or visitors.

- b) **The operators need to work together as a sector and consolidate a sustainability strategy to further demonstrate sustainability performance.** Improved performance against operator codes of conduct and the availability of monitoring results would show their goodwill and their support for biodiversity conservation. This would in turn strengthen their position in the green/sustainable tourism market.
- c) **Plett Tourism and the accommodation bureau should improve the marketing of marine boat-based tourism in Plettenberg Bay,** highlighting operator's sustainability performance to improve market share in the green/sustainable tourism sector, indirectly supporting biodiversity conservation. This can lead to higher occupancy on marine tours and greater local induced effects.
- d) **The Bitou Municipality should review the Central Beach boat launching facility, together with operators, to identify improvements and create a world-class tourism facility.** Taking small steps and as a start, infrastructural maintenance and security can be improved.
- e) Through strengthening sustainability performance and thus market position, the operators should identify and provide further local economic development opportunity, through for instance **providing sustainability training for employees and increasing community outreach and support programmes.** Reasonable targets could be set by the operators themselves. This will further increase their market share in the social impact and responsible trade market.

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APPENDIX A: Economic Analysis Technical Notes

a) Economic industries supported by marine boat-based tourism

In Plettenberg Bay, marine boat-based tourism contributes to several economic industries, as indicated by different Standard Industrial Classification (SIC) codes (Table A1). All of these form part of the tertiary sector in South Africa. This excludes the indirect effects of spending in these sectors on other sectors in the local economy. Although it was not possible to allocate the spending in this study by SIC code (owing to a shortage of comprehensive economic data) it is nonetheless indicative of the range of sectors to which marine tourism contributes.

Table A1: Standard Industrial Classification related to marine boat-based tourism

SIC Code	Standard Industrial Classification (SIC) - Description	Organised Tour	Self-drive
G	Wholesale and retail trade; repair of motor vehicles and motorcycles		
45-47	Retail sale of automotive fuels and vehicle maintenance costs	?	X
I	Accommodation and food service activities		
55	Accommodation	?	X
56	Food service activities	X	X
N	Administrative and support services activities		
77	Lease of motor vehicles		?
79	Activities of tour operators	X	

Note: X = data exist for the study; ? = probably an impact, but no data exist and only a rough estimate was possible. Also excluded are airfares to South Africa and other domestic air travel costs.

b) Expenditure impacts

Direct expenditure was estimated from the visitor survey and the proportion of expenditure attributed to Plettenberg Bay was estimated from this, based on the proportion of the sample staying in Plettenberg Bay versus those staying outside. Indirect and induced expenditure for 2019 was estimated using the tourist multiplier from WTTC (2020). The type II multiplier was estimated from these sources as:

$$\begin{array}{rclclcl} \text{Type II multiplier} & = & \text{Direct expenditure} & + & \text{Indirect Expenditure} & + & \text{Induced expenditure} \\ 2.59 & = & 1.0 & + & 1.09 & + & 0.5 \end{array}$$

This multiplier was higher than that which was estimated by Saayman et al. (2000), showing that tourism was having a greater impact on the economy than 20 years ago. It should be noted that these are Type II multipliers, therefore focus on production sectors, as well as the additional expenditure associated with increased household earnings (so called induced effects). Saayman et al. (2000)'s multiplier focused only on output sectors (the so-called Type I multiplier), so excluded induced effects. Even so, the Type I multiplier for 2019 was higher than the type I multiplier estimated in 2000.

c) Employment impacts

A similar method to the expenditure multiplier was used to estimate the employment impacts, based on the data obtained for whale watching and seal viewing only. Furthermore, the analysis takes into account employment in other sectors (food, hospitality, transport), as a result of marine boat-based tourism activities. An employment multiplier of 2.5 was derived from the Department of Tourism of South Africa (2017).

$$\begin{array}{rclclcl} \text{Employment multiplier} & = & \text{Direct employment} & + & \text{Indirect and induced employment} \\ 2.5 & = & 1.0 & + & 1.5 \end{array}$$

The sample also provides data on number of dependents, and the total number of dependents that are likely to benefit in Plettenberg Bay was estimated. The implicit assumption was that the number of dependents are the same across all sectors. Since all operators are based in Plettenberg Bay, all these employment benefits will accrue to the Plettenberg Bay area.

APPENDIX B: Questionnaires

Questionnaire used to collect data from visitors:

Interviewer:	Date:	Questionnaire ID:
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Questionnaire: Visitor

Thank you for participating in this research project and please feel comfortable with the level of detail provided. All information provided is kept strictly confidential. All participation is voluntary and optional.

Project Aim: Assess the economic value of marine tourism in Plettenberg Bay and the flow of economic benefits in the sector.

Questionnaire Structure:

- Tourist origin and tourist category
- Purpose of visit to Plettenberg Bay
- Costs to visit Plettenberg Bay
- Tourist recommendations

Questionnaire aim: We would like to achieve a good estimate for each question asked.

Country of residence:	Age:	Travelling companions	Adults:	Children <12yrs:
Organized tour operator: <i>N/A for self-drive tourists.</i>				
No.	Question	Data		
1.	Did you come to Plettenberg Bay for a specific marine tourism activity? If yes, which:	Whales & dolphins: Y/N	Seals: Y/N	
		Other: <i>Specify</i>		
2.	Where did you see/hear about the marine tours in Plett?			
3.	How many nights are you staying in Plettenberg Bay?	No. of nights		
4.	What type of accommodation are you staying in?	Own/private	Y/N	
		Backpackers	Y/N	
		Self-catering/Air B&B	Y/N	
		Three Star Accommodation	Y/N	
		Five Star Accommodation	Y/N	
5.	In which area of the Plettenberg Bay region are you staying?	Plettenberg Bay (town)	Y/N	
		The Crags	Y/N	
		Wittedrift	Y/N	
		Airport road	Y/N	
		Harkerville	Y/N	
		Nature's Valley:	Y/N	
	Outside Plett area: where?			
Organized tour <i>If with an organized tour operator, then locate tour guide questions 6 to 9.</i>				
6.	What is the cost of the tour package per person?	R		

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7.	How many sites in Plett do you visit on tour, other than Central Beach?	No.
8.	On tour, how many days do you visit Central Beach for marine tourism activities?	No. of days
9.	Does your tour package include food and accommodation?	Y/N
	If not, what are your additional costs for food and accommodation per day?	R value/day
Self-drive trip <i>If self-drive tourist, then complete questions 10 to 14.</i>		
10.	What is your daily spend on accommodation?	R value/day
11.	What is your approximate daily spend on restaurants and food?	R value/day
12.	How much are you spending on transport to get to Plettenberg Bay?	R value
13.	How much are you spending on transport within Plettenberg Bay per day?	R value/day
14.	Out of your total amount of days spent in Plettenberg Bay, how many of those days were spent travelling specifically to Central Beach for a marine tour related experience?	No. of days
General <i>For all tourists to complete.</i>		
15.	How much did you spend on marine related curios or gifts in Plettenberg Bay?	Total R value
16.	How much did you spend on other general curios or gifts in Plettenberg Bay?	Total R value
17.	Would you return to Plettenberg Bay for any of the above-mentioned marine activities in particular?	Y/N
	Why?	
18.	Does the sustainability of the marine tourism sector concern you?	Y/N
	If yes, please specify what specifically concerns you:	
19.	What do like about the marine tourism experience/operations on Central Beach?	
20.	Are there any improvements you would like to see? Is there anything you would like done differently?	

Questionnaire used to collect data from operators:

Interviewer:	Date:	Questionnaire ID:
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04 October 2019

Questionnaire: Operator

Thank you for participating in this research project and please feel comfortable with the level of detail provided. All information provided is kept strictly in confidence and held in trust through the Non-disclosure Agreement. All participation is voluntary and optional.

Questionnaire Purpose: obtain measurable data from boat-based marine tourism operator by thoroughly completing the following questionnaire.

Questionnaire Structure

- Economics of the operation
- Operational expenditure
- Staffing statistics
- General

Questionnaire Aim: We would like to achieve a good estimate for each question asked.

Completed by: <i>include name</i> Date: <i>include date</i>		Operator: <i>include name</i>		
Ownership details : <i>include BBBEE rating</i>		Operating since: <i>include date</i>		
Economics of the operation				
No.	Question	Data		
1.	When is your high season for whale, dolphin, seal watching/fishing?	Whales & dolphins:	Start	End
2.		Seals:	Start	End
3.		Fishing:	Start	End
4.		Diving:	Start	End
5.	Price per person in high season; a) Adult b) Child	a)		
6.		b)		
7.	Price per person in low season; a) Adult b) Child	a)		
8.		b)		
9.	Do you have local prices, and when/how are they applied? Please provide numbers.			
10.	What is your maximum capacity per vessel?	Vessel name:	Max. capacity:	

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11.		Vessel name:	Max. capacity:
12.		Vessel name:	Max. capacity:
13.	On average, how many days per month are you not able to launch, due to weather.	High season:	Low season:
14.	What is your average number of trips per month?	High season:	Low season:
15.	What is your seat occupancy per month?	High season:	Low season:

Annual Operational Expenditure			
No.	Question	Data	
7.	How many vessels do you operate?	No. of vessels:	
8.	What is your estimated annual average operating cost for last 3 years?	R	
9.	What is your estimated annual operating cost for your last financial year?	R	
	What is your annual operating cost or % of operating cost towards the following expenditure items:	R	%
10.	Marine guides		
11.	Staff salaries, incl. PAYE & UIF, incentives, bonuses, commissions, etc.		
12.	Booking costs (staff or off-site agent or both)		
13.	Marketing		
14.	Commissions		
15.	Fuel		
16.	Vehicle/motor servicing		
17.	Buildings: water & electricity		
18.	Buildings: rates & taxes		
19.	Insurance		

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20.	Permits/authorisations		
21.	Fees: SAMSA		
22.	Fees: accountant		
23.	Training		
24.	Research support		
		R	%
25.	Social responsibility		
26.		<i>Total #10 to incl. #26 must = total@#9</i>	<i>Total #10 to incl. #26 must = 100%</i>

Staffing Statistics		
No.	Question	Data
27.	How many full-time staff do you employ?	No.:
28.	Please indicate on the household size for each individual staff member .	<i>Please complete Appendix 1 list.</i>
29.	How many part-time staff do you employ, and when?	No.:
		Duration:
30.	How many casual staff do you employ, and when?	No.:
		Duration:
31.	Please detail any further staff information that you would like presented, for e.g. level of salaries/wages paid & demo-graphics.	

General		
32.	Do you make any donations, and if so, how much?	
33.	Please provide details of Corporate Social Responsibility (CSR) support, initiatives and/or programmes.	
34.	Do you have any general concern re. the economic and/or social aspects of the sector?	
35.	Please provide any additional comments/information; additional pages will be accepted.	

Appendix 1: List of Employees and Dependents

No.	Employee Name	Household Size (no.)	Dependents (no.)	Men (no.)	Women (no.)	Children (no.)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						