
ENVIRONMENTAL LEGISLATION COMPLIANCE: A
STRATEGY TO IMPLEMENT A GOVERNANCE
FRAMEWORK IN ALGOA BAY

by

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Abstract

Over the past decades there has been a drastic decline in our ocean's health that has resulted in fish depletion as well as marine life endangerment. This is largely due to human and economic activities such as commercial fishing, ship to ship bunkering and dumping of waste material at sea. The lack of governance and law enforcement has been a catalyst to the ocean's fast approaching death.

Although many laws and legislation exist to direct and encourage appropriate behaviour to preserve the ocean and marine life as well as ensure equality and equal access, the follow through and adherence have been lacking.

This study was guided by the aim to develop a strategy for the implementation of a corporate governance framework to enhance compliance to environmental legislation in Algoa Bay to better protect the ocean, marine life and the rich biodiversity in the region which in extension will be beneficial to society and the oceans economy, as a thriving ocean is good for fishing, investments, imports, exports and tourism which is crucial for a booming oceans economy.

The methodology applied in this research is a qualitative approach that used semi-structured interviews targeted at owners and managers of organisations to extract data regarding the level of compliance by those operating in the Algoa Bay region to marine and environmental legislation to decipher where decision making leaned and if it was slanted more towards non-compliance.

The findings of the study demonstrate that organisations are not fully compliant to marine and environmental legislation despite being environmentally aware and portraying themselves as such to the public. This has been largely due to poor law enforcement practices and organisations valuing profit over compliance. As a result, African Penguins and many other fish species have become endangered.

A corporate governance framework to enhance compliance will benefit society and promote job creation by employing more law enforcement agents to ensure the laws are being adhered to which will improve the socio-economic state for Algoa Bay and preserve the biodiversity and marine resources.

Key words:

Environmental legislation

Corporate governance

Oceans economy

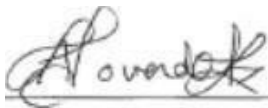
Threats to marine life and society

Law enforcement

Non-compliance to environmental or marine legislation

Declaration

I, Andrea Govender, 221401148, hereby declare that this dissertation, ENVIRONMENTAL LEGISLATION COMPLIANCE: A STRATEGY TO IMPLEMENT A GOVERNANCE FRAMEWORK IN ALGOA BAY for the *Master of Commerce in Accounting* is my own original piece of work, which can be made available for photocopying, as well as internal library borrowing. This dissertation has not been submitted before for evaluation to any other university or for any other qualification.



Andrea Govender

Port Elizabeth

August 2021

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List of Abbreviations

BSI	British Standards Institution
COSO	Committee of Sponsoring Organisations
DEAT	Department of Environmental Affairs and Tourism
DFFE	Department of Fisheries, Forestry and Environment
EMI	Environmental Management Inspectorate
EMS	Environmental Management Systems
ERM	Enterprise Risk Management
GDP	Gross Domestic Product
ISO	International Organisation for Standardisation
IUCN	International Union for Conservation of Nature
MLRA	Marine Living Resources Act
MPA	Marine Protected Area
MSC	Marine Stewardship Council
MSP	Marine Spatial Planning
NDP	National Development Plan
NEMA	National Environmental Management Act
NEMBA	National Environmental Management Biodiversity Act
NEMWA	National Environmental Management Waste Act
NMU	Nelson Mandela University
OECD	Organisation for Economic Co-Operative Development
PRO	Primary Research Objective
Rec-H	Research Ethics Committee (Human)

RSA	Republic of South Africa
SAICA	South African Institute of Chartered Accountants
SAMSA	South African Maritime Safety Authority
SANCCOB	South African Foundation for the Conservation of Coastal Seabirds
SANParks	South African National Parks
SAPS	The South African Police Service
SARS	South African Revenue Service
SDGs	Sustainable Development Goals
SRO	Secondary Research Objectives
TBL	Triple Bottom Line
TNPA	Transnet National Port Authority
ToF	Theory of the Firm
UCT	University of Cape Town
WWF	World Wildlife Fund

CHAPTER 1

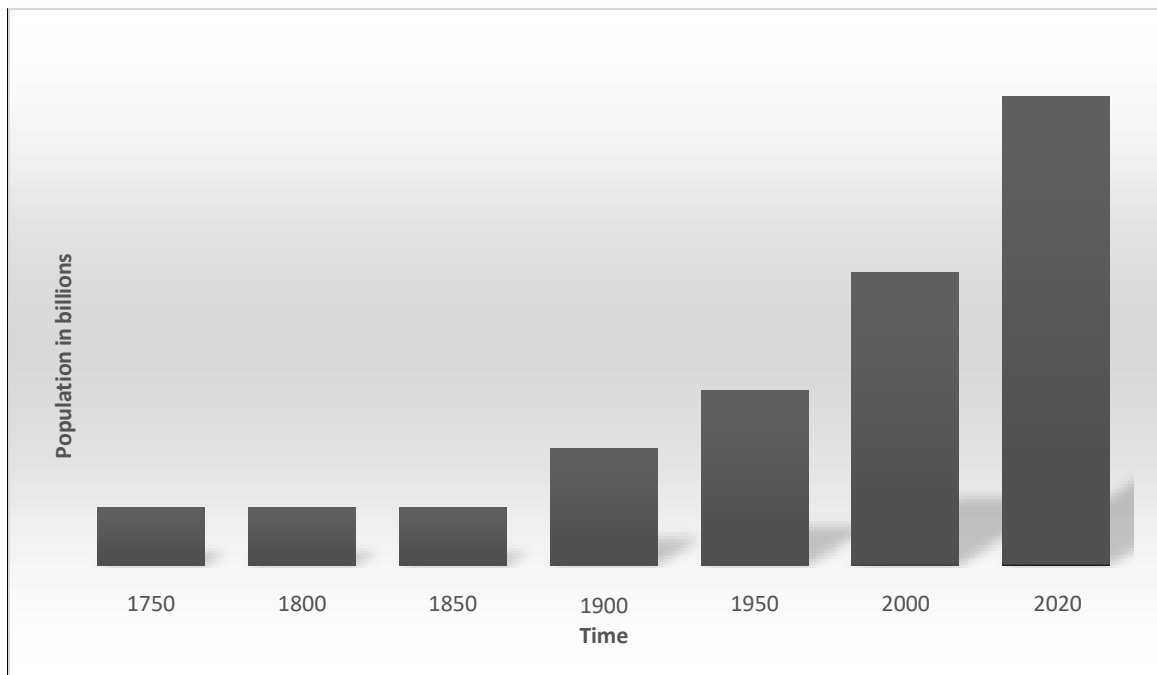
OVERVIEW OF STUDY

“You wouldn't think you could kill an ocean, would you? But we'll do it one day. That's how negligent we are” (Rankin 2008).

1.1. INTRODUCTION

Ocean pollution has increased substantially in recent years. This has transcended to a depletion of fish and other surrounding marine life (Kumari, Bhati, Yadav, & Kumar 2019). The depletion of fish stocks due to pollutants results in a negative impact on the oceans economy, as well as society at large. Food security has now become threatened and can no longer meet the demands of the expanding population growth (Cole, Augustin, Robertson, & Manners 2018). This exponential population growth is illustrated in Figure 1.

FIGURE 1:
HUMAN POPULATION GROWTH



Source: Byrd 2020

Figure 1 illustrates the human population growth from the year 1800 to present. The figure reveals that during the period 1800 to 1850, no growth is documented. However, for the century between 1850 to 1950, an approximate growth rate of 150% is reported. This increases further for the century between 1950 to 2000, revealing an approximate growth rate of 200%. In respect of the most recent period (20 years) 2000 to 2020, an approximate growth rate of 120% is reported. The exponential growth rate, especially during the most recent 20 years, is alarming when considering the food needs. The human population growth increases the demand for food security. The processes followed to provide for the growing needs could result in pollution of the ocean and other natural resources (Roser, Ritchie, & Ortiz-Ospina 2019).

Ocean and estuary pollution lead to many marine life threats and health implications for society (Kennish 2002). Apart from ocean pollution, society needs to be increasingly aware about the concept of air pollution. This type of pollution stems mainly from the fumes emitted by the industrial hubs and motor vehicles. The gasses contained in the fumes are carcinogenic and harmful to human health, as well as the health of other living organisms (Kroukamp 2019).

This situation has coincided with an increase in cancer due to a higher amount of these carcinogenic chemicals being deployed into the air and surrounding environment, thus having a negative impact on living organisms ingesting this air (Casey et al 2015). For the purposes of this research, however, the impact of population growth and the subsequent pollution, will be limited to the impact on the oceans economy as per the research question and associated research objectives.

Despite these potentially negative consequences, there are also some positive factors worthy of acknowledgment. For example, the increase in economic activity within a particular oceans economy can have a favourable impact on socio-economic aspects, such as job creation. These benefits have an impact on the local [oceans] economy (Stuchtey, Dixon, Danielson, Hale, Wiplinger, & Bai 2019).

It is therefore imperative that organisations operating within the oceans economy (the Nelson Mandela Bay region in respect of this study) be sensitised to their role, responsibilities and the potential adverse impact that their operations may have on the already sensitive natural resources. Guidance pronouncements exist that provide guidance on sound corporate governance practices. Stemming from these guidance

pronouncements, corporate governance frameworks are developed and published, in South Africa and internationally, to provide guidance to all business forms to enhance corporate governance practices.

The next section outlines the oceans economy and how important it is for economic growth.

1.2. OCEANS ECONOMY

The oceans economy is the maritime activities that contribute to the country's gross domestic product (GDP). These activities include aquaculture, fisheries, bunkering, imports and exports and any other activity that uses the ocean in their primary business activity. Ocean economy valuations are needed for ocean governance and are in the form of the oceanic activities' contribution to the GDP as well as valuations of estimated investments and growth (Findlay 2021).

1.2.1. Blue economy

The term blue economy describes the encouragement of a more efficient and conducive use of the ocean's resources to promote a better socio and economic state. It is parallel to a green economy and aims to create a sustainable and inclusive oceans economy. The blue economy has three central pillars (Findlay 2021):

1. Resource production or mobilisation
2. Welfare and suitable distribution on income
3. Future prospects and opportunities for sustainability and use of ocean wealth.

1.2.2. Ocean accounting

Ocean accounting is a set of integrated reports of the economic activities, societal circumstances as well as environmental elements that aid in national planning and forecasts (Findlay 2021).

In 2014, Operation Phakisa was introduced in South Africa which was formulated to boost the oceans economy by using unused resources of the ocean to stimulate job creation, increased food supply and be a catalyst to the National Development Plan (Dorrington, Lombard, & Bornman 2018). Operation Phakisa which translates to 'operation hurry up', has six key focus areas that aim to boost the oceans economy

and improve the quality of life of society using skills, research and technology (Republic of South Africa (RSA) 2021a).

1. Marine transport and manufacturing transport
2. Offshore oil and gas exploration
3. Aquaculture
4. Marine protected services
5. Small harbours
6. Coastal and marine tourism.

1.2.3. Oceans governance framework

Marine spatial planning (MSP), which is an oceans governance framework, aims to allow for a multi-stage approach whereby work will be done on one marine area at a time. The framework aims to encourage growth and development as well as protection and monitoring of the country's Marine Area plans. This is achieved through a Marine Spatial Planning structure which seeks the sustainable growth and development of the country's ocean environment. The framework is targeted at the national regulatory authorities to provide guidance and improvement (RSA 2017).

Marine spatial planning contributes towards the following advantages for South African (RSA 2017):

- Opening up the ocean economy and increasing economic development.
- Promoting a healthier societal interaction with the ocean and improving livelihoods.
- Ensuring marine environment is protected and marine resources are not abused.
- Contributing to sound ocean governance practices.

The next section describes corporate governance, ocean governance and a framework that the study used as a template to develop a strategy to enhance compliance to environmental legislation in Algoa Bay.

1.3. CORPORATE GOVERNANCE

Corporate governance is a set of formulated rules, policies and regulations that govern an organisation's behaviour, operations and staff. There are four Ps of corporate governance: people, process, performance and purpose, which outline the categories

to be governed within an organisation. These regulations are enforced by the stakeholders who have a vested interest in and power to enforce these regulations within the organisation and make the necessary decisions (Chen 2021).

1.3.1. Guidance on corporate governance

Guidance on corporate governance entails guidelines provided to the stakeholders and role players of an organisation. The individuals holding authority, the relationships within the organisations and those involved in decision making should be identified. There should be isolation of duty to ensure that there is no corruption taking place from within.

The guiding pillars of corporate governance are accountability, fairness, transparency, assurance, leadership and stakeholder management (Gitau 2015).

1.3.2. Corporate governance on the oceans economy – Ocean governance

Ocean governance is a set of policies, actions and rules regarding the use of the ocean to preserve, mitigate risk and adequately manage the ocean's resources as well as containing the rich biodiversity therein. The establishment of the policies and rules are specifically related to factors such as food security and marine conservation. There are three elements of ocean governance, namely legal, institutional framework and mechanism of implementation (Bailet 2002).

1.3.3. Corporate guidance on the oceans economy

Governance of oceans is a process involving governments, private organisations from commercial and non-profit sectors, as well as society. Monitoring how decisions are made about oceans economy is crucial to improving its effectiveness. Ocean governance accounts are a pilot component of the Ocean Accounts Framework that this study investigated to gauge its effectiveness (Global Ocean Accounts Partnership 2019).

1.3.4. Importance of corporate governance for the oceans economy

Ocean governance is the process of informed decision making, trade-offs and a monitored use of marine resources (Findlay 2021).

Corporate governance allows companies to be transparent with the public regarding their policies and operations and ensures that they take accountability for their actions. An honest company that is forthcoming about the nature of their operations and adheres to all rules, bodes well with investors and society.

This is good for the oceans economy as organisational success boosts the maritime sector. The good behaviour of organisations has a green effect on the ocean and marine life as there is less exploitation and abuse of marine resources.

1.3.5. A framework to enhance compliance

Corporate governance relates to performance of the organisation, particularly how it operates. The following questions should be considered when developing a sustainable framework (Institute of Chartered Accountants in England and Wales 2021):

- Who are the stakeholders in the organisation?
- How do the organisational objectives and goals play a role in how decisions are made?
- What are the organisation's current purpose and policies?
- What are the relationships between the stakeholders within the organisation and the public and do these pose challenges in terms of accountability?
- How does the organisation manage and mitigate its compliance risk?

The next section delves into the importance and contribution of the oceans economy to the country's GDP.

1.4. THE ALGOA BAY OCEANS ECONOMY

The Algoa Bay oceans economy is also referred to as the maritime sector and includes many economic activities such as tourism, imports, exports, fisheries, bunkering and many other activities that operate in the ocean.

The Eastern Cape Department of Fisheries, Forestry and Environment prepares to contribute an amount of R10 billion to the country's oceans economy in the hope of augmenting the GDP to 5% and increasing investment to 27,1% by 2030 as per the National Development Plan (NDP) (Matavire 2020).

South African fisheries (both commercial and local) are financially and economically vital for society. The role it plays in food security for local communities is essential as well as offering job opportunities to the local fishermen. Tourism is also crucial to the economy as it is the one of the largest contributors to the South African oceans economy. Marine and coastal tourism provides R26 billion towards the GDP in South Africa. Marine developments are currently put at risk by 22% due to the rising sea levels due to climate change which affect their marine structures. Marine resources contribute approximately 35% towards the country's annual GDP (Parliamentary Monitoring Group 2017).

Maritime operations contribute an amount of \$1.5 trillion towards the world's economy. Operation Phakisa aims to add an estimated R1,77 billion to the oceans economy by 2033 whilst also creating an estimated one million new job opportunities for society (Organisation for Economic Co-Operative Development (OECD) 2021).

The academic theory of the study is important as it is used to underpin the study. In order to formally structure the research, the next section outlines the academic theory considerations that were used to decide on the most appropriate theory for the study.

1.5. ACADEMIC THEORY

In order to provide rigour, clear direction and focus to the study, it is important to identify an existing academic theory that will underpin discussions, findings and conclusions drawn from the research. 'Academics consider theories to be the bedrock of scientific research' (Schneberger, Pollard, & Watson 2009). A theory provides correlations within a set of constraints (Bacharach, 1989). This section introduces the theory that was identified as most suitable in the context of this research.

The theory that was used as the lens of the study is the *theory of the firm* (ToF). This is used as a meta-theory, which states that the subject matter itself is used as the theory (William 2018). ToF is a microeconomic concept that states that the main objective of a company is to maximise profits (Murphy 2019). This study aims to highlight the opportunity cost¹ between compliance and non-compliance to marine legislation. Based on anecdotal evidence, it is more profitable for a company to not adhere to the marine laws in place as the cost of compliance outweighs the potential fines or penalties posed by law for non-compliance. The apparent lack of law

¹ Opportunity cost is the forgone benefit of the option not chosen.

enforcement and a possible negative attitude on the side of organisations operating in the oceans economy towards being compliant, results in the opportunity cost referred to earlier. For example, an organisation would rather pay a penalty of say R5 000 than to erect a plant at a cost of approximately R5 million to effectively and legally manage its waste.

The applicability of the ToF to this study lies therein that it explains the behaviour of the organisation and management as well as the driving force that governs their decision making – profit maximisation. In addition, organisations sometimes find complying to marine legislation too expensive and that the alternative becomes more appealing as it helps meet financial goals quicker.

Other theories were considered for this study, such as the *agency theory* which speaks to stakeholder and agent relationships; the *stakeholder theory* which states that companies should prioritise and seek to provide value for all stakeholders; and the *evolutionary governance theory* which is a theoretical framework that dissects and explains governance as well as the evolution of governance. When considering the context of this study, the ToF was found most relevant as it explains why non-compliance is so prevalent and appealing and is a starting point for finding a solution to circumvent and eradicate the propensity of non-compliance to marine legislation.

1.5.1. Understanding the theory of the firm

The ToF influences decision making in a variety of areas, including resource allocation, production techniques, pricing adjustments, and the volume of production in businesses (Murphy 2020).

1.5.2. Limitations of the ToF

A disadvantage to the ToF is that it equates value maximisation with profit maximisation; however, in actuality there are many other factors to be considered, including reputation, customer satisfaction and staff morale.

1.5.3. Theory of the firm vs. theory of the consumer

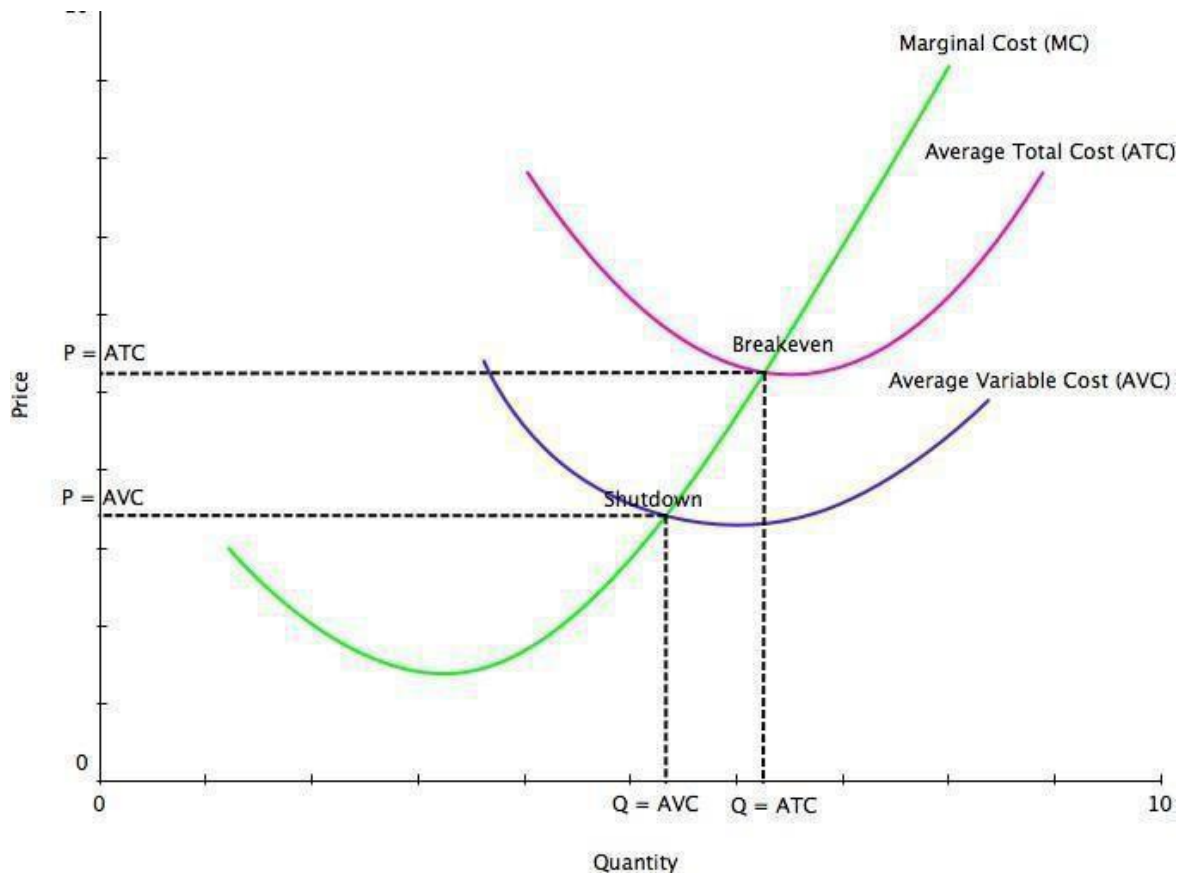
The theory of the firm works with the theory of the consumer, which is the study that determines how consumers choose to spend their money and how their needs, preferences and budget limitations influence their decisions. Consumers want to get

the most out of their money or maximise their level of happiness from a product or service that they purchase, whilst a firm will want to maximise their profit and get the best outcome for them (Liberto 2020). This is crucial in the context of the study as consumers are more likely to purchase fish that are endangered or harvested by a company that practises overfishing in order meet their own needs.

1.5.4. Risks to companies that adhere to the theory of the firm

Risks exist for companies that adhere to a profit-maximisation goal as mainly focusing and prioritising profit maximisation could lead to a level of risk with regards to the company's reputation and external relationships (Gordon 2021).

FIGURE 2:
PROFIT ANALYSIS



Source: Yoneda 2012

Figure 2 outlines a profit analysis structure and the relationship between costs and profit.

The research problem identifies the need and purpose of the study and is explained in the next section.

1.6. RESEARCH PROBLEM

From the literature consulted, guidance is currently lacking in terms of a corporate governance framework for compliance to marine legislation in South Africa and encouraging individuals to comply with and conserve the environment. This is particularly pertinent to large marine areas in the Algoa Bay region (South African History Online 2019). It was apparent from the literature examined that there is currently limited published research in respect of compliance to marine legislation and the impact thereof on corporate governance, particularly within a South African context.

A strategy to enhance governance compliance implementation of a corporate governance framework for marine legislation is therefore needed. In addition, the strategy must address the gap in knowledge that has been identified. The effective implementation of such a framework would reduce the possibility of non-compliance to legislation and environmental management standards.

The research problem of this study is thus stated as:

A strategy is needed to encourage corporate governance practices, to improve compliance by organisations operating in the Algoa Bay region, to coastal and marine legislation.

The research objectives of the study helped to ensure that the data collected was relevant and useful. The primary and secondary research objectives of the study are outlined in the next section.

1.7. RESEARCH OBJECTIVES

Research objectives outline and elaborate on what the research aims to accomplish. These objectives provide a summary of what the researcher hopes to achieve with the study and provide the path or direction the study will use (Editage Insights 2019).

To give effect to finding a solution to the research problem of the study (see Section 1.6), the following research objectives were formulated. The primary objective of the study is presented next.

1.7.1. Primary research objective (PRO)

To address the research problem of the study, the primary objective was formulated as:

To design a strategy for the implementation of a corporate governance framework to encourage compliance to coastal and marine legislation in Algoa Bay.

1.7.2. Secondary research objectives (SRO)

To give effect to the primary objective, the following secondary objectives were formulated:

- SRO1: To conceptualise corporate governance, and related pronouncements, in relation to the oceans economy in South Africa.
- SRO2: To identify and contextualise coastal and marine legislation (including international agreements) relating to the oceans economy in the Algoa Bay region.
- SRO3: To define and contextualise environmental management; environment management systems; and the role and responsibilities of corporate management in relation to marine and coastal governance practices.
- SRO4: To identify and contextualise role players of organisations operating in the Algoa Bay region.
- SRO5: To identify and contextualise areas of non-compliance to marine legislation in the Algoa Bay region.
- SRO6: To define and explain the potential environmental impact/s resulting from non-compliance to marine legislation (poor corporate governance).

The next section outlines the research methodology that was used in the study during the data collection process.

1.8. RESEARCH METHODOLOGY

Research methodology describes how the researcher systematically approaches a study and develops a design to establish validity and reliability of data obtained to meet the research objectives (Jansen & Warren 2020).

1.8.1. Introduction to methodology

The following section, research methodology, discusses the background into the research and the nature of this study. Research methods and data collection explain how data was extracted and used for this study. Lastly, the ethical considerations of

the study are discussed to ascertain the protocols put in place to maintain the integrity of the study.

1.8.2. Background to research

Research is a process of collecting data or evidence to discover answers to a specific question, which allows the resolution of problems by identifying solutions (Clark & Creswell 2014). The purpose of undertaking research is to inform and contribute to developing knowledge in a field or study, which could be of significance and importance in the future (Welman, Kruger, & Mitchell 2005).

1.8.3. Nature of the study

Saunders, Lewis and Thornhill (2003) listed the two primary categories of research methods, namely the quantitative and the qualitative methods. Yin (2016) explained that the quantitative method answers research questions by providing numerical estimates and percentages to solve problems, whereas the qualitative method analyses data without the use of statistics, with the focus rather on the thought process that has gone into producing the information.

Based on the dearth of published literature pertaining to this study, an empirical qualitative research methodology was followed to address the research problem and achieve the specific objectives of the study.

1.8.4. Research methods

Scotland (2012) stated that when an interpretive research approach is utilised, a common method of producing the qualitative data is by asking questions that require open-ended answers, through the undertaking of semi-structured interviews. A semi-structured interview is defined as a verbal interchange, where the interviewer attempts to elicit information from the participants by asking questions (Struwig & Stead 2001). Although these questions are predetermined, the order and nature of the questions can change during the interview process depending on the progression of the interview (Harrell & Bradley 2009).

1.8.5. Population and sample size

1.8.5.1. *Population*

Turner (2003) defined the sample frame as a list of all individuals or groups within the population who can be sampled for research purposes. As previously mentioned, primary data was gathered by conducting interviews with managers/owners in the Algoa Bay region. The study focused on individuals from a variety of sectors within the region, in order to diversify the responses as far as possible. Specifically, managers/owners from large corporations in both the public and private sectors were contacted. In addition, responses were sought from these relevant individuals in other sectors such as organisations from the formal and informal trade.

1.8.5.2. *Sample size*

The sample size refers to the extraction and selection of a portion of the relevant individuals or groups selected from the total population. According to Kothari (2004), this method can take the form of either probability sampling, where each part of the population has a probability of a known amount of being included in the sample size, or non-probability sampling in which the probability of inclusion is not determined.

For the purpose of this study, non-probability sampling was utilised as the participants had not been predetermined. Purposive sampling was used in this research to determine the final sample size, which was dependent on the number of responses received from the participants contacted, as well as the quality of the data collected. In order to increase the likelihood of collecting data that was useful to the study, participants from various business sectors in the Algoa Bay region were contacted. More specifically, business types such as commercial fishing, manufacturing, mining, fish farming and other service industries in the region were contacted to gauge their availability to participate in the study.

1.8.5.3. *Recruitment process*

The research made use of directories, internet pages and websites to identify candidates; in addition, individuals were identified from the Nelson Mandela University Business Chambers and where telephone numbers were available, in alignment with the POPI Act, those individuals were contacted. Research was done on organisations with a substantial influence in the Algoa Bay Area and snowballing data was also obtained. Primary data was

gathered from conducting interviews with managers/owners in the Algoa Bay region. The minimum number of participants used was six and the maximum was twenty. Data saturation was met at 20 participants. Had this been not the case and saturation was met earlier, another four subjects would have been interviewed to achieve reliability. With qualitative research, studies have shown that a minimum of five participants and a maximum of 50 participants are sufficient for this type of research (Dworkin 2012).

1.8.6. Data collection

Data collection entails gathering, measuring and analysing data that is relevant to a field of study (Dimagi 2020). Primary research data entails the gathering of new data directly by the researcher from original sources, to generate a new understanding in the attempt of solving the research problems (Farquhar 2012).

1.8.6.1. *Data collection instrument*

Research instruments are designed to collect either qualitative or quantitative data. Questions that permit open-ended responses offer participants freedom of expression by allowing them to describe their opinion, yielding richer qualitative data (Smith 2007). In comparison, questions that require closed-ended responses, which contain categories designed by the researcher, result in data collection through structured answers. As previously mentioned, due to the nature of the depth of the feedback required from the interview participants, questions that allow for open-ended responses were deemed more beneficial, resulting in more rich data being obtained.

Thus, for the purpose of this study, semi-structured interview schedules were used when conducting interviews with managers/owners of organisations in the Algoa Bay region. Interviews were conducted by means of electronic meeting media such as Zoom, Skype or MS Teams. Apart from detailed notes being taken during interviews, the interviews were recorded digitally.

Due to the Covid-19 pandemic that demanded social distancing and limited most interactions, interviews were conducted electronically to maintain all safety protocols and safeguard both interviewer and interviewee.

Johnson and Christensen (2000) stated that questions during the interview process should be designed and posed in a manner to attempt to match the research objectives of the study, after the careful review of existing relevant research literature. In light of

this consideration and in the context of the research problem and associated research objectives of the study, an extensive literature study was conducted prior to the design of the interview schedule questions.

Secondary research data is data that has previously been gathered for other purposes, besides the current research problem that is being investigated (Polonsky & Waller 2011). In relation to this research, governance mechanisms and pronouncements for marine legislation compliance, such as ISO14001 and other related SABS; King IV; and other relevant scholarly work were reviewed by means of an extensive literature study, to extract and gather relevant secondary data.

1.8.6.2. Interviews-interview guide

The interviews were conducted on a one-on-one basis during working hours in weekdays and during weekends. The questions asked were based on an interview guide that was divided into five themes in order to extract the relevant data from the participants.

The following are the five themes of the interview guide, as identified from the literature review:

1. Environmental awareness to ascertain whether organisations are sensitised to their role in corporate governance and to what extent they are actively participating in order to create environmental awareness.
2. Organisation policies and marine legislation to determine which organisational policies, regulations and legislation are currently in place to assist the organisation with management decisions.
3. Stakeholders of an organisation that operates in the oceans economy to identify the organisations, individuals or communities who are the biggest role players in an organisation.
4. Compliance to regulations, laws and policies to assess the risks of compliance vs. non-compliance and which is more lucrative to management of organisations.
5. Incentivisation and rewarding of behaviour to assess what incentive would encourage compliance and what type of incentive would be adequate enough to replace the benefit of non-compliance to a company.

1.8.7. Reliability and validity

Reliability and validity will be used in the context of the study but credibility, dependability, conformability, transferability and authenticity are often used to test the trustworthiness of qualitative data.

1.8.7.1. *Reliability*

Reliability is described as the related degree of consistency of the results which accurately represent the total population of the study, through the proper use of the research instrument (Joppe 2000).

Pilot testing is a method of pre-testing of the research instrument on a select number of participants with the relevant skills and knowledge to participate in the questionnaire or interview, for the purposes of reliability, prior to the main administration of the research instrument. The aim of this pilot test was to ensure that the research instrument was easily understood by the participants and the interview and questionnaire ran smoothly (Van Teijlingen & Hundley 2002).

A pilot interview was conducted in the second week in May 2021 with a manager of an organisation in the Algoa Bay region to gauge the quality and effectiveness of the interview guide and to determine how to build a rapport with the participants that is engaging rather than offensive.

- A date and time was set up via the recruitment process in which the interviewee was emailed requesting the participant's time accompanied by a consent form as per ethical clearance.
- At the beginning of the interview on MS Teams, permission was granted to begin recording.
- Due to the nature of the questions being semi-structured, other topics were mentioned and discussed by interviewer and interviewee.
- Changes were made to the interview guide, where necessary, to mitigate problems with the collation of data.

1.8.7.2. *Data validity*

Validity measures the level of sufficiency of the research instrument addressing the research objectives (Joppe 2000). The following considerations were made when reviewing the face validity of the interview questions in this study:

Questions were designed so as not to be offensive to participants. The questions were designed to ensure that they were straightforward and not ambiguous to participants, and the questions were reviewed by a technical language specialist to confirm the appropriateness of the design. Questions were designed to be applicable to the relevant respondents.

1.8.8. Data analysis

After the gathering of data in the form of the interview, it is necessary to analyse the data obtained using data analysis procedures that will give meaning to the results.

The primary data collected through the semi-structured interviews were analysed using the Atlas.Ti ® qualitative analysis tool. The transcripts of the interviews were coded, and thematic qualitative text analysis was used to determine categories and themes within the data.

The secondary data collected were analysed through a comparison of existing literature on the relevant subject matter.

1.8.8.1. Challenges to interpreting qualitative data

The Hawthorne effect describes participants changing their demeanour and behaviour due to being observed, which can lead to less truthful responses to appear more favourable (Koks 2015).

In the context of this study, a risk existed in that participants might not have been truthful when asked about their compliance to marine and environmental legislation in order to avoid disrepute and punishment by law. Some participants might have feared being exposed and encountering reputational damage which would disrupt sales, investments and business activity. In addition, participants could have potentially feared adverse repercussions from law enforcement agencies if they had admitted to non-compliance which would land them in an unfavourable predicament at their organisation with potential dismissal (Truter 2019).

The facilitation of the research instrument entailed the collection of data, which required ethical considerations to be addressed. These are discussed in the following section.

1.8.9. Ethical considerations

The previous section established the methodology that was utilised to address the research problem and achieve the objectives of the study. Relevant business owners and managers were requested to participate in the study as part of the data collection process.

Since this process involves human participation, it is necessary to consider all possible ethical considerations, such as the informed consent of participants, protection from potential harm and the safeguarding of all participants' identity and confidentiality. During this process, it is also imperative that the research remains impartial and transparent at all times (Hofstee 2016).

To ensure compliance with the ethical procedures that are prescribed by the Research Ethics Committee (Human) (Rec-H), reference number H21-BES-ACC-031 of Nelson Mandela University, ethical clearance approval was applied for and obtained prior to the commencement of the data collection process.

This section began by highlighting the use of qualitative data and the undertaking of further empirical research.

The structure of the research dissertation is explained in the next section.

1.9. OUTLINE OF THE STUDY

Table 1 presents the structure of the study, describing the five chapters that it contains.

TABLE 1:
OUTLINE OF THE STUDY

Chapter 1	Overview of the study
Chapter 2	Corporate governance as it relates to the oceans economy
Chapter 3	Oceans Economy
Chapter 4	Analysis and interpretation of findings
Chapter 5	Conclusions and recommendations

It is clear that the study is important as evidence exists showing marine life depletion in a sector that depends on marine resources and contributes tremendously to the oceans economy. The next section briefly summaries Chapter 1.

1.10. CHAPTER SUMMARY

Chapter 1 has discussed how ocean pollution has increased over the years and how the effects of this pollution has affected marine life as well the quality of human life. Role players in the oceans economy need to be more aware of their roles in the oceans economy to decrease pollution and the harmful effects that it has on ocean and aquatic life.

Based on this issue and the literature consulted indicating a lack of guidance in this regard, the research problem was formulated with associated research objectives, which aimed to propose a strategy to improve compliance to marine legislation and create environmental awareness, with the goal of decreasing ocean pollution.

The research methodology section confirmed that a qualitative method was most appropriate to meet the research objectives. In addition, the chapter discussed the relevant sample frame, sample sizes, research instruments and the statistical analysis utilised to meet the research objectives.

The population used to extract primary data and the sample size that was used were outlined in Section 1.8.5. The section presented the recruitment process which described methods of contact and how relevant participants were identified.

The data collection method outlining the need to use electronic communication methods was described and the interview guide used in the data collection process was summarised, identifying the five relevant themes.

The pilot interview conducted was explained providing a detailed account of the interaction that took place between the interviewer and interviewee and at how improvements were made.

Lastly, data analysis software was highlighted as well as the method of analysis followed by the ethical considerations that had to be adhered to such as ensuring consent forms were obtained from all participants.

The literature review that follows in Chapter 2 outlines guidance pronouncements and published literature to justify and substantiate the importance and need for this research.

CHAPTER 2

CORPORATE GOVERNANCE AS IT RELATES TO THE OCEANS ECONOMY

2.1. INTRODUCTION

Chapter 1 of the study presented the introduction and background to the study, raising the challenges associated with pollution, particularly within the oceans economy. This highlighted the need for governance frameworks that could enable business owners to be part of the solution to eradicate the propensity of non-compliance to marine legislation. The research methodology was described in detail and outlined the data collection process of the study. Chapter 1 also provided an overview of the academic theory used to underpin the study.

This chapter defines and contextualises governance frameworks and other relevant literature pertaining to the study. It further outlines the incidents reported which emphasise the need for a strategy to implement sound governance frameworks to enhance compliance to marine legislation.

The chapter is divided into three parts. The first part addresses the National Development Plan 2030 of the South African Government, the second part addresses the governance guidance pronouncements relevant to the study and part three describes incidents of non-compliance in Algoa Bay.

2.2. PROSPECTIVE DIRECTION OF THE SOUTH AFRICAN GOVERNMENT'S NATIONAL DEVELOPMENT PLAN 2030

The South African government aims to improve the lives of all people living in South Africa by ensuring that the economy and the environment are well taken care of. The NDP 2030, discussed next, outlines the plans of the government to ensure the aforementioned can be achieved.

Since the first democratic elections in 1994 for South Africa, Government has strived to reduce poverty and increase equality amongst all South Africans. In 2012, South Africa introduced the National Development Plan 2030 (NDP 2030) which aims to achieve growth and build-up of the economy for the betterment, atonement and

rectification of all people. The NDP 2030 offers a long-term perspective which sets out to be achieved by the year 2030 and which defines a desired target for the country as well as recognises the different sectors within society and the role that each sector needs to play in reaching the objectives set out in the NDP (RSA 2020c).

The importance of NDP 2030 in this particular study is that a successful framework to enhance compliance to marine legislation and encourage corporate governance in the Algoa Bay region will have a positive impact on the health and livelihood of the human population in the region which addresses the research problem of the study. The findings from this study might also inform changes to be affected in order to achieve the goals of the NDP 2030. The NDP 2030 also ties in to the secondary research objectives in this study which aimed to define and contextualise the potential impact of non-compliance to marine legislation on the oceans economy.

The 14 national priorities are structured around 14 priority outcomes. This is illustrated briefly in Table 2.

TABLE 2:
NATIONAL OUTCOMES OF THE NDP 2030

Priority	Aim
Education and training	The aim of this outcome is to ensure that 90% of learners in primary and secondary school level pass subjects that include languages, maths and sciences with a minimum of 50%. Students at tertiary level who fall in the age group of 18 years old and older, will also be catered to, to ensure that their educational and training needs are enhanced - (RSA 2021b).
Health	The outcome aims to increase life expectancy, reduce maternal and child mortality rates as well as tackle diseases such as HIV/AIDS and tuberculosis (RSA 2021b).
Safety and security	The core intention is for South African citizens to be safeguarded against crime and violence. This objective also aims for the police service to be improved and officers to be equipped with the necessary skill set that enables them to protect the community without discrimination and corruption as well as respect the rights of all citizens without prejudice to seek justice for all (RSA 2021b).

Priority	Aim
Economic growth and employment	To increase employment and income distribution and aims to raise the standards of living for people of the country as well as boost the economic state. The increase in employment hopes to reduce inequality and crime which speaks to the core and essential aim of the NDP 2030 (RSA 2021b).
Economic Infrastructure	To achieve economic development and growth by substantial investments in energy infrastructure which will play a critical role in providing job opportunities and social equality. The outcome also aims to ensure environmental sustainability and preservation which aims to mitigate the risks of pollution and effects of climate change (RSA 2021b).
Rural developments	To assist citizens occupying rural areas to have a role in economic, social and political activities and to be allowed to participate freely therein. They should have access to essential services for their own well-being and be provided with the opportunities to study and obtain skills (RSA 2021b).
Human settlements	To ameliorate poverty traps in informal settlements and rural communities, extensive crime in inner cities and residential communities shielded considerably with electric fences and high walls. The aim is also to improve issues such as load shedding, poor road infrastructure, contaminated water supply and unlawful protests (RSA 2021b).
Environment	To reduce reliance on energy, natural resources and carbon while still ensuring the objectives and aims of improving the employment rate and reducing inequality are achieved (RSA 2021b).
International relations	To enhance the international interconnectedness of the country and have more influence both regionally and internationally which ensures poverty reduction and a growing economy (RSA 2021b).
Building a capable state	To achieve an efficiently run and effectively co-ordinated state institution consisting of staff who are committed to their roles and are ethical in their operations to serve the public sincerely and to deliver quality public service (RSA 2021b).
Social protection	To increase employment rates and improved livelihoods in majority of households in South Africa. Vulnerable and at-

Priority	Aim
	risk citizens such as women, homeless and people with disabilities will also enjoy protection and no longer suffer hardships such as hunger and malnutrition (RSA 2021b).
Nation building and social cohesion	To ensure that people living in South Africa will pay more attention to what they have in common rather than their differences and work together for cohesion (RSA 2021b).

Chapter 1 of the NDP 2030 discusses key drivers of change and Chapter 2 discusses demographic trends which are not visions but rather give more perspective for all South Africans.

Three of the 14 national outcomes of the NDP 2030 have reference to this study:

- **National outcome 2: A long and healthy life for all South Africans** –This is ubiquitous in the study’s objective to implement a governance strategy to enhance compliance to marine legislation. In doing this, the quality of life for humans and marine life will substantially improve as pollution reduces (Lonne 2016)
- **National outcome 6: An efficient, competitive and responsive economic infrastructure network** – This aims to increase job creation, deliver water, electricity and sanitation as well as improve trade imports and exports. This means that the lives of South Africans will be ameliorated by an increased income (Brand South Africa 2015). This is prevalent to the study as the erection of infrastructure and waste disposal systems will benefit the economy.
- **National outcome 10: Protecting and enhancing our environmental assets and natural resources** – This is key in this field of study as the enhancement of compliance will mean that the environment and natural resources will be preserved, which will improve the economy and GDP by attracting tourists. It also allows natural resources to be used over a longer period which helps the country to save funds (OECD 2018).
 - Output 1 – Water demand is forecasted to increase by 52%, while water supply is expected to decrease. This is due to poor municipal infrastructure and improper sewage systems. To improve water capacity, a plan for a

system has been outlined for treatment plants to be erected which is hypothesised to increase the water supply (RSA 2021e).

- Output 2 – A plan has been set out in order to reduce South Africa's greenhouse emissions by reducing CO₂ emissions to mitigate the effects of climate change. Adaption plans are needed such as ensuring that there is an increase in power that is generated by renewable resources (RSA 2021e).
- Output 3 – This output aims to reduce the percentage of land that is affected by soil degradation and to establish that net deforestation is sustained at 5% and not more. Solid waste management to ensure recycling, waste minimisation and adequate waste disposal facilities are part of the plans that have been put in place to ensure that landfill pollution is diminished by working with all governmental spheres (RSA 2021e).
- Output 4 – This output aims to protect the natural biodiversity of the country and to ensure that the number of species at risk of extinction or endangered, decreases. This can be achieved with a proposal to provide clean water to natural ecosystems with good catchment management systems and prevention of soil erosion as well as carbon storage to counterbalance global warming (RSA 2021e).

The public depends on the government, knowingly and unknowingly, to safeguard them and fulfil the promises made in the long-term plans suggested in the NDP 2030. The private sector is controlled at all three spheres of national, provincial and local levels, with the main objective being to enhance economic growth that would essentially result in tax revenue and a more fluid economy for the South African Government to achieve the NDP 2030 objectives. It is thus clear that several role players exist in the South African [oceans] economy and that each role player plays an important part (Discussed in Chapter 3).

The NDP 2030 discusses a long-term plan, whilst Section 2.3 of this dissertation discusses governance guidance pronouncements. The oceans economy is a range of environmentally and socially sustainable business activities that impact coastal and marine resources (discussed in Chapter 3). This makes up a big part of the economy that contributes largely to the GDP of the country. The oceans economy needs

guidance on governance frameworks which could provide enhancement for compliance. The following section addresses the governance relating to the oceans economy. It also discusses the governance guidance pronouncements and how this relates to organisations and ensures environmentally friendly conduct.

2.3. GOVERNANCE GUIDANCE PRONOUNCEMENTS

Sound governance guidance pronouncements will establish that the organisations' board of directors meet often to discuss their responsibilities which need to be adequately divided to isolate responsibility and ensure risk management is maintained (Young 2017).

2.3.1. What is corporate governance?

Corporate governance, by definition, refers to the ability of the controlling body to exercise its powers through decision making and the enforcement of relevant rules and regulations (Fukuyama 2013). A governance structure combines controls, policies and guidelines that assist the business to achieve its objectives and satisfy the needs of the relevant stakeholders. A governance structure combines various governance mechanisms to enable the structure to function effectively (Ashurov 2010).

Corporate governance in an organisation is important as it ensures order and precision and accuracy in the decision-making process whilst identifying those who should be held accountable for mishaps. The organisation can work towards its mission, targets and vision using corporate governance. The gain obtained because of corporate governance is not easily quantifiable in the short term. Governance frameworks are important as they can benefit shareholders by ensuring that managers in the companies act in their best interest, avoiding challenges of only looking at profit maximisation as outlined in the ToF (Refer to Section 1.5). Good governance mechanisms also provide assurance to stakeholders that the business conducts itself in a manner that is congruent with societal norms (Karbhari, Muye, Hassan, & Elnahass 2018).

When considering corporate governance as it relates to the natural environment, the term environmental governance is defined as a structure that enables society to manage the [natural] environment. Yoshida (2012) further stated that sound

governance practices (including compliance to legislation) provide a concrete policy structure for the environmentally sensitive conservation society.

The following are the four Ps of corporate governance to assist organisations in operating in an environmentally friendly manner (Money Matters 2021):

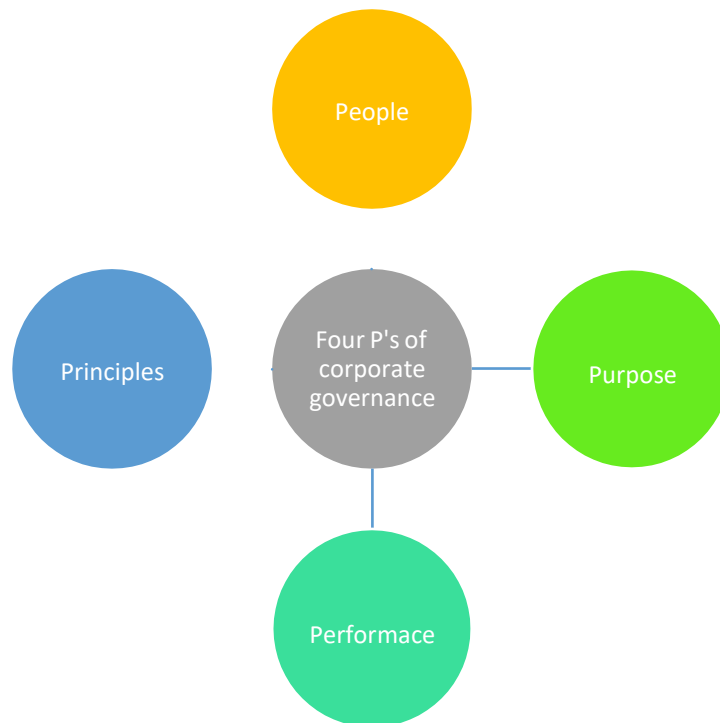
1. Purpose – the reason that the organisation exists and operates. Environmental, social and economic improvement (triple bottom line) should be included in an organisation's statement of purpose. The declaration in the purpose statement indicates the organisation's promise to make a beneficial contribution to the environment, the local community and the economy in a sensitised and responsible approach.
2. Principles – this is the basis of organisations and can be classified as their belief system. Organisational principles must be stated and clearly indicate the primary and leading principles of the company. These ensure that the organisation acts ethically, honestly, fairly and with compassion towards its employees, society and the environment which includes marine and terrestrial life.
3. Practices – sound practices are putting the promises and purpose statement into action. Practices ascertain whether an organisation's purpose of ensuring environmental, social and economic development is followed through, as practices indicate the application of purpose as well as principles of the organisation. Practices talk to community, environment, employees and customers' concerns.

A few methods that organisations use are the following:

- The environment: Recycling, reducing and reusing of resources and materials, energy saving and environmental audits.
 - Employees: Development and training as well as learning opportunities, safe and conducive working environments, and fair equitable treatment.
 - Shareholders: Detailed, clear and concise financial information. Honest environmental, social and governance reports as well as adequate management of corporate governance problem areas.
4. Performance measurement – this entails gauging and reporting on how organisations have impacted their stakeholders and how well they have done in

meeting the objectives of their purpose statement and fulfilling their principles. Performance measurement is both qualitative and quantitative measurements, using both stakeholder engagement and opinion as well as financial data to identify performance with regards to the triple bottom line (TBL).

FIGURE 3:
THE FOUR PS OF CORPORATE GOVERNANCE



Source: Slide Geeks, 2021

2.3.2. Key principle of corporate governance – Shareholder inclusivity

Recognition of shareholders is crucial in corporate governance. First, there is an understanding of the importance and key role that shareholders play in an organisation. Equity is one of the largest sources of capital funding for organisations. Second, each shareholder holds an interest as well as responsibility towards the organisation that must be recognised (Corporate Finance 2019).

Organisations should have a policy whereby shareholders are tasked with the election of the board of directors which is very important. The board of directors appoint, oversee and delegate to the executives who are made up of the group that manages the day-to-day business activities of the organisation (Corporate Finance 2019). This

essentially means that shareholders of an organisation have a direct input in the running of the organisation (Corporate Finance Institute 2021).

2.3.2.1. Transparency

Corporate governance is influenced by shareholder interest. Shareholders are able to sway community members who do not have a vested interest in the organisation but who still benefit from goods or services produced and offered. Communicating and engaging with the community builds lines of communication that increase transparency of an organisation and place them in a favourable light. Transparency ensures that those directly or indirectly affected by the organisation can review and verify the organisation's activities and provide an influence if the organisation is operating in a manner harmful to the environment or society. This act of transparency also appeals to investors and potential shareholders (Corporate Finance 2019).

2.3.2.2. Security

Corporate governance regards security as essential. Shareholders and consumers need to trust the organisation to maintain the confidentiality of their personal information. It is also vital to ensure the organisation's proprietary processes and operating secrets are kept confidential. A breach of security and data being leaked is expensive and brings the organisation into disrepute by public trust which could negatively affect the share price of the organisation. There could also be investors pulling out which could lead to a loss of capital and a hindrance to corporate growth (Industry Today 2020).

2.3.2.3. Board of director representation

The experience and expertise that board members acquire, need to be in line with the current and future requirements of the organisation. A board's composition could have been appropriate in the past but needs to adjust over time to address the latest organisational needs. Additionally, a board composition that is predominantly made up of long serving individuals may prohibit change for an organisation and could continue to operate in an environmentally negative manner (Einstein 2019).

The next section pertains to governance and how it relates to the oceans economy.

2.4. ENVIRONMENTAL LEGISLATION AND CORPORATE GOVERNANCE PRONOUNCEMENT COMPLIANCE (GOVERNANCE RELATING TO OCEANS ECONOMY)

Sustainability reporting has become a key component of the reporting process of a business entity, with the focus on the business reporting on matters pertaining to environmental, social, economic and corporate governance issues from the perspective of the organisation (Kiyanga, Wingard, & Cronje 2016). Arowoshegbe and Uniamikogbo (2016) linked the concept of sustainability to the TBL reporting, stating that the concepts are based on the same principles of the social, environmental and economic aspects relating to the firm, rather than the business solely focusing on the microeconomic objective of profit maximisation. Slaper and Hall (2011) further added the principles could be measured by the impact that the business makes, relating to its people, the planet and profit.

Figure 4 below describes the principles of the TBL (people, planet and profit) and guides organisations on how to operate sustainably and fairly whilst still meeting their objectives.

FIGURE 4:
TRIPLE BOTTOM LINE



Source: Adapted from Southside Staffing 2017

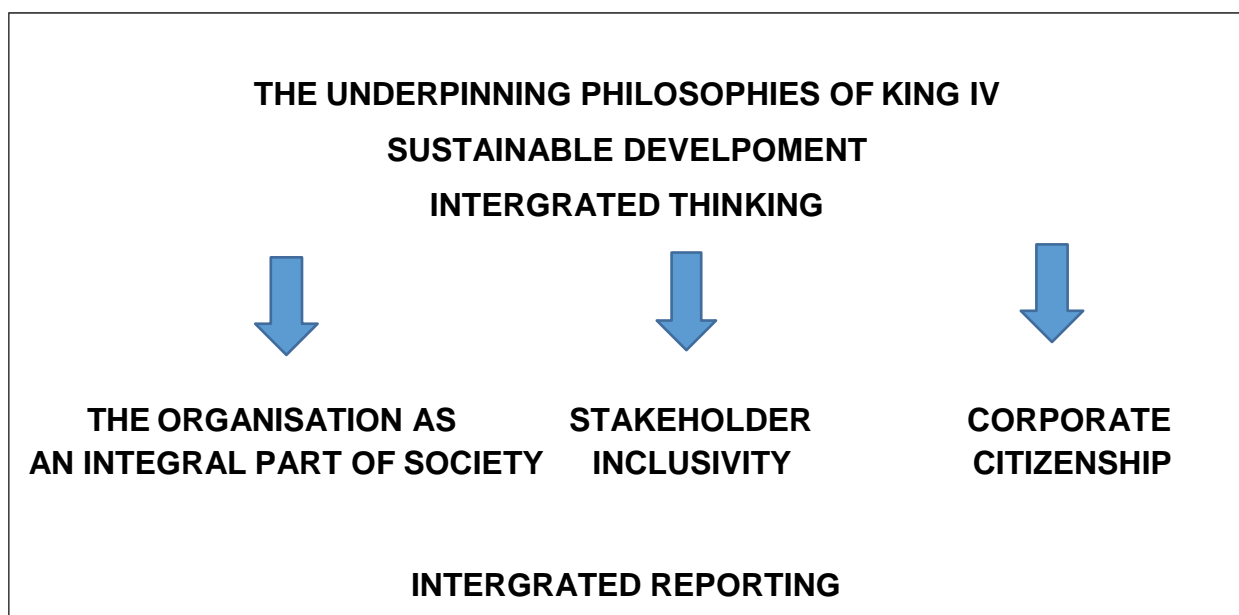
Various guidance pronouncements exist, in South Africa and internationally, that provide guidance for individuals and businesses with regards to compliance to environmental legislation. These are discussed next.

2.4.1. King IV Report on Corporate Governance for South Africa 2016

The King IV Report on Corporate Governance for South Africa (King IV) has its roots in the first King report published in 1994 by the King Commission on Corporate Governance. It was established to recommend standards of conduct to the managers of companies. King IV, which provides a guideline for the governance structures of companies in South Africa, became effective from November 2016 (KPMG 2017). King IV is based on a fundamental approach of principle- and outcomes instead of a rules-based approach. Corporate governance focuses on ethical leadership, stakeholder behaviour and mindset. One of the critical concepts of King IV is corporate citizenship. Corporate citizenship, in the context of this study, refers to the responsibility that an organisation has towards the natural environment and society, to promote sustainable development (South African Institute of Chartered Accountants (SAICA) 2020).

The diagram in Figure 5 below outlines the factors that an organisation must consider in decision making in order to achieve the TBL.

FIGURE 5:
THE UNDERPINNING PHILOSOPHIES OF KING IV



Source: SAICA 2020

The following factors that must be considered when owners and managers of an organisation are involved in decision making are as stated in King VI:

- Integrated thinking – gauges the trends and interdependencies between the multitude of factors that influence an organisation’s capability of creating value over time (SAICA 2020)
- The organisation as part of society – organisational operations have an effect on society and vice versa in a mutually beneficial relationship (SAICA 2020).
- Stakeholder inclusivity – an interconnected relationship exists between the organisation and its shareholders. The organisation’s ability to grow and maximise benefit for itself depends on its ability to create benefit and value for others. An organisation becomes accustomed to the opportunities and threats created by the TBL in which it operates by considering the interests, requirements, and expectations of all stakeholders (SAICA 2020).
- Corporate citizenship – as an important part of society, corporate citizenship dictates the rights, responsibilities and commitments of the organisation in relation to society as well as the natural environment that society depends on (SAICA 2020).
- Integrated reporting – a process that has been established on integrated thinking which results in a regular integrated report by an organisation and the creation of value over time (SAICA 2020).

The above factors are relevant to encouraging compliance for better decision-making processes by owners and managers.

2.4.2. Environmental management system

The International Organisation for Standardisation (ISO) is a self-standing, non-governmental, globally recognised organisation that establishes the ISO standards to ensure that the operations of organisations are done efficiently and safely, and that they sustainably produce quality goods and services (Wilber 2020).

Environmental management is the control of interactions and management of the footprint on the environment by operations and human actions. Environmental management aims to recognise elements that contribute towards a clash of two

objectives, being the running of operations efficiently and preserving the environment (Environmental Protection Agency 2021). Environmental management systems (EMS) are procedures put in place by an organisation to alleviate harm to the environment whilst increasing efficiency of operations. The International Organisation for Standardisation (ISO) 14001 standard is used to outline specific responsibilities for EMS (American Society for Quality 2021). ISO 14001 outlines the framework that organisations can use to develop an effective EMS. It is not activity or sector specific and is structured to assist organisations to meet their profit targets without disregarding their environmental responsibilities and allows them to grow sustainably (ISO Assist 2020).

2.4.3. Environmental management standards

Environmental management standard (ISO 14001) aims to ensure that the outputs from operations will have a decreased environmental impact. It should be noted that the ISO 14001 standards provide guidelines on what an organisation should do, it does not outline how it must be done (American Society for Quality 2021). The standard is crucial as it provides guidance where there is a deficiency within an organisation and can aid streamlining compliance to environmental legislation.

ISO 14001 is a series of standards pertaining to the management of the environment, that is provided to organisations to assist and aid in minimising the negative impact operations have directly or indirectly on the environment and how organisations should adhere to applicable laws, policy regulations, and other environmental requirements (Hutchens Jr 2017).

ISO 14001 standards for environmental management refer to the mitigation and refuting of negative risks to the environment, through air, water and land pollution. The British Standards Institution (BSI) Group established the first environmental management systems standard in the world to aid in the environment's protection due to vast global distress regarding environmental degradation (ISO 2020a).

2.4.4. Risk management standards (ISO 31000)

The International Organisation for Standards (ISO) 31000 (Risk management) consists of instructions that provide a framework and a system for mitigating risk. The standard is used for the purpose of assisting organisations to meet their objectives

and reach their goals, whilst increasing awareness of opportunities and threats posed in the industry and how to efficiently use resources for the purpose of risk treatment (ISO 2020b). ISO 31000 is not organisation specific and provides management with a generic technique when addressing risk management that can be used for different types of business risks such as financial, safety and operational risks (Risk Engineering 2017). This standard is relevant as it will assist owners and managers with a framework that fits their operations and still promotes environmental conservation as aimed in the study.

2.4.5. The Companies Act No.71 of 2008

The Companies Act of 2008 stipulates that certain companies need to have a Social and Ethics Committee that will monitor and ensure that an organisation acts responsibly as a corporate citizen and complies to regulations, by promoting awareness and environmental sustainability in the process (RSA 2008). Deloitte (2014) stated that it is a mandatory requirement for an organisation to have a Social and Ethics Committee provided the following criteria are applicable to their company:

- State-owned company;
- Listed public company; and
- Company that has, in any two of the previous five years, had a public interest score of at least 500 points².

2.4.6. Committee of Sponsoring Organisations (COSO) Enterprise Risk Management Framework

The COSO Enterprise Risk Management Framework outlines the risk management of an organisation by the management and board of directors, aiming to meet the organisational goals and targets and is established to foresee any risks, and ensure that the risk is within the organisations risk appetite, to align with its objectives (COSO-ERM 2020). Four COSO risk assessment principles of the 2013 framework are as follows (Stippich 2015):

²The public interest score is a concept of the Companies Act whereby a company is allocated points according to the number of its employees, its annual turnover, its stakeholders and the level of third-party liabilities at the end of the financial year.

- **Principle 6: Outline objectives with clarity** – this principle outlines the risk assessment. Organisations can consider this for upgraded processes and correlated documentation. An organisation needs to disclose its external financial and non-financial, operational and internal reports as well as the compliance objectives that they use.
 - (1) **Operations objectives**

It is necessary for organisational management to be clear and concise in outlining objectives for external financial reporting for each category as relevant to the company. Operational objectives need to be specified as they are valuable in management and risk mitigation. It is vital for implementing the strategic planning in organisations.
 - (2) **Reporting objectives**

The 1992 Framework emphasised language pertaining to organisational reporting besides the external financial reporting. The Sarbanes-Oxley Act and other related Acts saw the COSO internal control framework become interconnected to external financial reporting. The 2013 Framework outlines the guidance for other reporting scenarios to ensure clarity when enforcing and applying the principles and necessary components more extensively. In identifying these objectives, the 2013 Framework emphasises sustainability reporting, which has become increasingly important and relevant.
 - (3) **Compliance objectives**

An organisation has to adhere to and enforce a multitude of guidelines designated to them from various regulatory bodies. A helpful system would be to reach the requirements of COSO first and foremost. Second, the language of the compliance documents should be similar to the compliance checklist that is mandated.
- **Principle 7: Identify and assess risks within the organisation – principle 7 answers the questions as indicated:**
 - (1) What threats or obstacles hinder the ability of organisations meeting the objectives outlined in Principle 6 throughout the different levels of the organisation?

(2) What is the probability of a certain risk coming to fruition, how bad could the consequences be and how long after will the company start to suffer and to what extent?

(3) How should management react if an undesired event transpires?

The 1992 guidance framework focused mainly on transactional risk which consisted of risks associated with carrying out of procedures at the functional and operational levels. The 2013 Framework, that prioritises organisational objectives, places importance on organisational-level risk. This ensures that risk is revisited regularly and more often than once a year.

- **Principle 8: Consider the potential impact of fraud in assessing risks to meet the objectives** – this principle gauges how fraud deters an organisation from meeting goals and objectives as outlined in Principle 6. This principle assists management in performing assessments on fraudulent reporting, loss of business assets, misconduct and corruption as a result of various unlawful actions. There are many approaches that an organisation can take to conduct a risk assessment based on fraud.
 - (1) Consider methods on how members within the organisation might overcome fraud controls.
 - (2) Take into consideration fraud risk when planning the organisation's internal audit plan.
 - (3) Identify incentives or loopholes in which staff and management could engage or commit fraud.

- **Principle 9: Identify and assess changes that could considerably impact the system of internal control** – this principle recommends that organisations continually change, both internally and externally, an assessment to mitigate risks. External changes comprise economic and regulatory changes as well as environmental aspects. Internal changes encompass those within the organisation's business activities, overseas trade and markets, as well as changes in organisational philosophies and management.

Implementing the COSO risk assessment framework – all necessary principles found in the COSO framework should be included to ensure that management can assess

and report on the organisation's internal controls. Multiple organisations are beginning to use the Framework, examining if their existing and current controls meet the principles of the Framework and then implementing new and improved controls to be up to standard. A new set of documentation will be needed to show how the principles are satisfied.

The next section outlines the repercussions of poor corporate governance.

2.5. CONSEQUENCES OF POOR CORPORATE GOVERNANCE

Corporate governance is a set of regulations, policies, and procedures of an organisation to ensure accountability. Each layer that makes up the organisation, the shareholders, the board of directors, the management, and employees is responsible to ensure that the organisation operates in an environmentally conducive manner that is not harmful to society which in turn holds all layers accountable. The board regularly issues financial reports to the shareholders to ensure the corporate governance principle of transparency is adhered to. This forms part of their accountability (Corporate Finance 2019).

An example of poor and inadequate corporate governance is Enron Corp. Multiple executives were accused of unlawful actions such as incorrect use of accounting methods to hide the fact that they were stealing money from the organisation. The fraudulent figures were provided to the board of directors, who did not pass the figures along to the shareholders, to avoid accountability. Shareholders were not privy to the fact that the organisation's debts were substantially more than reflected and within the organisation's means. The executives were apprehended and charged for their unlawful actions, but this left the organisation bankrupt, which negatively affected its shareholders and employees considerably (Segal 2021).

When sound corporate governance is ignored by owners and managers, the organisation risks bankruptcy and closure which affects everyone associated to them both directly and indirectly. The next section relates to incidents of non-compliance that exist in Algoa Bay due to poor corporate governance.

2.6. INCIDENTS OF NON-COMPLIANCE

Incidents of non-compliance include damaging a marine ecosystem either by vandalism or negligence, pollution of plastic or rubble or pollution from land-based run-

off which results from chemicals used on land adjacent to the water which can pollute the area and harm the aquatic life. It can also be pollution from ships either by dumping or spillage of oil, which causes a layer of oil to block sunlight from reaching the ocean floor and causes severe damage to marine life. There is also non-compliance by way of failure to follow the correct protocols and failure to determine the risk of collisions (Smith 2004).

Several incidents of environmental pollution as a result of accidental occurrences as well as mismanagement have been reported for the Algoa Bay region. In July 2019, a vessel operating in the South African sea transporting fuel suffered an oil spillage (ship to ship bunkering) and an estimated 200-400 litres of oil was dispersed into the sea causing havoc to marine life (Kwen 2019). In addition, there have been cases of poor management of storm water runoff in the region, which could result in harmful substances being present in the discharge, thus causing contamination (Department of Environmental Affairs and Tourism (DEAT) 2001). These occurrences and the lack of severity in dealing with the organisations that have perpetrated raise serious concerns for sustainability in the region. In addition, and according to anecdotal evidence, the penalties instituted for transgression of environmental legislation and regulations are not sufficiently deterrent to address the non-compliance habits of organisations and individuals.

Motivations for non-compliance to marine legislation can include large financial rewards for those who turn a blind eye and large sums of money can be made from illegal trade in valuable commercial fisheries. Some business operators simply weigh the costs of compliance, which can be considerable, with the likely costs of prosecution and punishment as discussed in the academic theory (ToF). Even where fines are imposed, these may be insufficient to outweigh the costs saved by violating regulations (Smith 2004). Where there is evidence of deliberate non-compliance, exemplary punishments may be appropriate.

Other reasons can include lack of knowledge about regulations, lack of understanding of the impact of non-compliance or the inability to pay the cost of compliance, for example building a waste disposal plant is too costly for some organisations (Smith 2004).

The incidents of non-compliance indicated above clearly state that there is a need for a corporate governance framework as addressed in the research problem of Chapter 1 due to the potential negative impacts of marine life and society.

The next section briefly summarises Chapter 2.

2.7. CHAPTER SUMMARY

The literature discussion above clearly identified certain challenges and shortcomings that need further investigation. However, in the context of this research, the study is limited to the research problem derived from the literature study.

Due to the abovementioned shortcomings of existing knowledge in this field, there is a need to undertake empirical research to address the limitations that currently exist. The findings of this research therefore provide empirical evidence to overcome the current lack of knowledge and allow for beneficial conclusions from the generation of new knowledge.

Chapter 3 discusses and details the oceans economy that encompasses the role players as well as the maritime activities taking place in Algoa Bay. The relevant marine legislation and presiding law enforcement pertaining to the oceans economy in the region as well as the background of Algoa Bay are also outlined and explained in Chapter 3.

CHAPTER 3

OCEANS ECONOMY

3.1. INTRODUCTION

The previous chapter discussed corporate governance and related guidance pronouncements and why these are relevant and necessary for organisations, particularly those operating in the oceans economy.

The chapter also illustrated the EMS that assist organisations with their corporate governance strategies to promote environmental conservation and sustainable operations.

This chapter is divided into four parts which delves into the role players of the oceans economy, the relevant legislation and law enforcement agencies governing the maritime industries, the Algoa Bay area and lastly, activities that pose a threat to the environment.

The chapter focuses on the bodies and associations responsible for ensuring that the necessary legislation is adhered to and for enforcing the law, where necessary. In addition, the chapter highlights existing policies and raises awareness to this.

3.2. KEY ROLE PLAYERS IN THE SOUTH AFRICAN OCEANS ECONOMY

In the context of this study, key role players in the South African oceans economy are organisations that have a material impact on the oceans economy. These role players are from both the public and private sectors in South Africa. They provide a significant influence and are affected by the NDP 2030 with their involvement in the economy. The role players indicated are the sectors with a large environmental and economic influence on the oceans economy. This section outlines who these stakeholders are and why their role is important in the context of this study.

3.2.1. Public sector stakeholders of the oceans economy

The South African public sector is divided into three distinct spheres, namely national government, provincial government and local government. These divisions are interlinked distinctive systems, with each focusing on their own areas and functions,

depending on each other and cooperating for the country's well-being. These spheres are briefly outlined next.

National government – The national government is responsible for approving laws, policies and legislation and ensuring that they are implemented and adhered to. The national government plays a crucial role in implementing governance frameworks and ensuring a follow through by ensuring that there are necessary law enforcement agencies to enforce the regulations. Parliament aims to ensure and achieve the effective response by government to upcoming environmental problems, such as challenges pertaining to climate change, and to address essential environmental priorities (Parliamentary Centre 2020). The national government inspects the plan to protect and preserve the ocean environment from all criminal and illegal activity to encourage multiple socio-economic benefits (RSA 2020a).

Provincial government – Provincial government is responsible for social services such health care, social development and education. They also oversee economic duties such as agriculture and roads as well as provincial administration and governance (National Treasury 2020). The Eastern Cape Provincial Government aims to put in place the Eastern Cape Oceans Economy Masterplan which hopes to hand over fishing rights to the allies in the OR Tambo region which will contribute to enhancing and increasing food security and reducing poverty and malnutrition (RSA 2020a).

Local government – The local government comprises the municipalities in South Africa. Municipalities ensure the smooth operation of the local government structure, by implementing the policy framework within which the local authorities perform to deliver public services and infrastructure to the local communities (RSA 2020d). There are currently 257 municipalities in South Africa, the Nelson Mandela Bay municipality being one of them. The local municipality is a substantial role player and an important driver in the oceans economy in South Africa as it is deals with the imports and exports of Volkswagen, Ford and numerous pharmaceutical organisations (Global Africa Network 2019).

Apart from the government organisations (public sector), the private sector organisations are important role players in the oceans economy.

3.2.2. Private sector as a role player in the oceans economy

The private sector comprises over 70% of the South African economy (Mathebula 2019). The following summarises the major industries in the private sector and their roles in and impact on the oceans economy.

- Industrial Sector (Retail and Manufacturing)

Pollution caused by industrial wastewater can increase the murkiness of the water. Sunlight is unable to reach the surface below. Marine plants inhabiting the bottom layers are thus unable to carry out the process of photosynthesis. Industrial and agricultural waste is another form of recurrent wastes that organisations directly dispose of into the oceans which results in water contamination and marine life threats. The discharging and dumping of toxic chemicals and waste in the ocean directly contributes to damaged ecosystems as the pollutants are considered dangerous and detrimental to the environment as they raise the ocean water temperature as they are quite high in temperature, which is called thermal pollution. As a result of thermal pollution, many organisms that cannot survive in the higher temperatures will eventually die (Conserve Energy Future 2021b).

Ship pollution is a tremendous source of ocean pollution and one of the largest contributors to the declining health of the environment is due to oil spills. Crude oil remains in the ocean for years and is harmful and toxic to marine animals and marine resources. Crude oil has been known to cause suffocation amongst marine animals and is also extremely difficult to clean up from the ocean (Wilderness Society 2021).

Debris and plastic pollution can consist of a range of materials from natural substances such as dust and sand to manufactured objects such packages, diapers and fast-food cutlery. Most pollutants, especially plastic pollutants, cannot decompose and remain in the ocean for years. Plastic can decompose into microplastics, which has harmful consequences to marine life and humans. (Conserve Energy Future 2020a).

- Agriculture

A significant amount of ocean pollution begins from land of the surrounding area. When vast areas of land are ploughed, the soil that is exposed can erode as a result of bad weather conditions such as heavy rain or storms and will then run into the ocean causing soil pollution. The soil that has run off could contain harmful chemicals such as fertilisers and pesticides which could be ingested by fish species and in turn ingested by humans which could lead to health complications (RSA 2020b).

The harmful chemicals used to treat crops in the citrus farms around the Sundays River valley could potentially have a significant contribution to water contamination which in turn affects the Port Elizabeth local communities.

Effluent running into rivers as a result of cattle and game farming in Algoa Bay is also as a result of poor waste disposal and poses a threat to aquatic life and society. Waste consists of manure fertiliser runoff which is considered to be nutrients. This waste needs to be recycled or disposed of safely. This practice is not environmentally friendly but does save money and cuts costs for farmers (Farmers Weekly 2018).

Abattoirs found in Port Elizabeth have been reported to improperly dispose of their waste and are a reservoir of bacterial pathogens which could harm both marine and terrestrial animals as well as humans (Franke-Whittle & Insam 2013).

Agriculture adds approximately 2% to the country's annual GDP which comprises cattle and sheep farming and 13% of agricultural land used to cultivate produce (Zantsi 2012). This emphasises the importance of agriculture for the economy.

- Mining

Deep-sea mining has immense impacts on the environment and surrounding life. Sediment plumes could be one of the biggest contributing factors as plumes are formed when the tailings from mining are discarded straight into the ocean which then creates a thick cloud of floating debris in the ocean water (International Union for Conservation of Nature (IUCN) 2020). Deep sea mining is a source of ocean pollution and consists of drilling for gold, silver and copper and in turn depositing sulphide approximately three and half kilometres down into the ocean.

Deep sea mining inflicts tremendous damage to the deepest levels of the ocean and increases the pollution and toxicity levels of that area. The permanent damage caused also gives rise to leaking, oil spills and corrosion that further hinder and destroy the ecosystem of the area (Conserve Energy Future 2020b).

Mining adds approximately 18% towards the GDP of the country which outlines the need for mining in the economy (Zantsi 2012).

- Fisheries

In order to prosper, marine animals require a specific and intricate type of marine environment and nutrients, in which they may depend on other organisms and other organisms may depend on them. Overfishing can cause destruction to the environment and disrupt the marine ecology (the branch of biology that pertains to the relationships of organisms with one another and their relationship with their physical environment) and the food chain of the marine animals and organisms. For example, herring is an essential species preyed on by the cod (Owens 2014). Illegal fisheries or an increase in foreign fisheries can cause an increase in chemical pollution as well as a decline in the oceans economy as a result of depleted fish population and species. This hinders the food supply of the local community and removes job opportunities from local fisheries. Driftnets and trawlers can also be harmful to a natural ecosystem by causing by-catch and endangerment of species such as sharks (Stokstad 2020).

- Society

Products that society uses in everyday life contain harmful chemicals that are transmitted through the drainage system into the ocean. Common manufactured pollutants that flow into the oceans include pesticides, herbicides, produce fertilisers, household and industrial detergents and oil. A large amount of ocean pollutants is expelled into the marine environment from upstream coastlines. The chemicals are ingested by marine life and once again ingested by society. The improper methods of disposing of sewage and waste also have a detrimental impact on the ocean (Gordon, Moffett, & Thomas 2020).

Society is also responsible for the majority of plastic pollution in the ocean. Dumping of wastes such as plastics and paper prevent the reuse of these

materials which results in the loss of resources. More energy is then needed to produce and manufacture new materials which is wasteful (Napa Recycling 2020).

Consumers are key role players in economic activities and contribute (both directly and indirectly, as well as positively and negatively) to the oceans economy. The role that society plays in the oceans economy is through food and product consumption. Society's consumption and spending on products and services that originate from the oceans economy, support the industrial, fishing and aquaculture sectors, amongst others, and positively impact on the country's GDP by uplifting the economy (Albulescu 2015).

- Human habits and activities that affect marine ecosystems

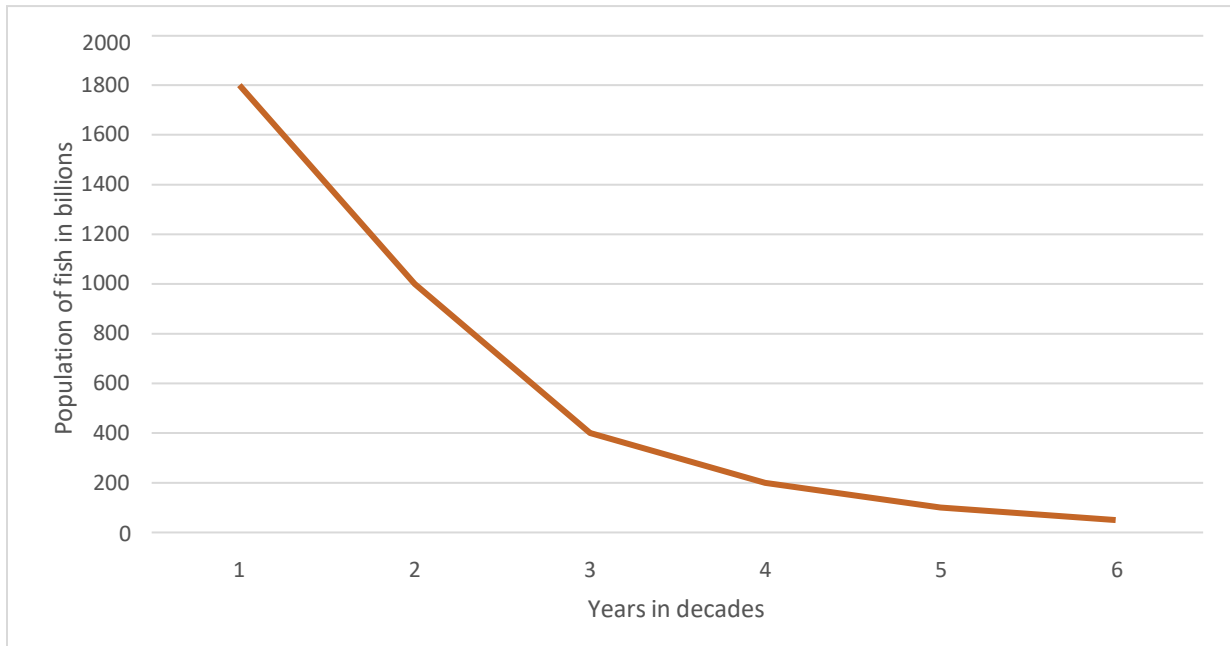
Household detergents, beauty and self-care products as well as industrial chemicals are commonly used in industry and households. These can potentially have an ill effect on marine life resulting in death as it destroys the external mucus layers of the fish that protect them from bacteria and parasites. This can cause damage to be sustained to the gills of fish causing suffocation. Majority of fish cannot survive detergent concentrations levels that reach 15 parts per million (Lenntech 2021).

- Food depletion caused by overfishing

Overfishing is a result of fishing beyond a required or permissible amount that results in fish populations being unable to replenish themselves through natural reproduction. The act of overfishing not only affects the balance of life within marine ecosystems, but also disrupts the social and economic welfare of the surrounding local coastal communities who are dependent on fish as a source of food and job creation (Conserve Energy Future 2021a). Figure 6 below indicates how the fish populations around the world have declined over the past decades.

The graph in Figure 6 indicates the plunge in the fish population in the world over several decades. The depletion is as a result of water contamination, climate change, overfishing and pollution.

FIGURE 6:
FISH POPULATION OVER TIME



Source: Brainly, 2018

It is evident that the population of fish has fast declined over the last few decades which potentially hinders human's food supply. Algoa Bay has had incidents reported of overfishing and water contamination which contributes to fish depletion.

Freshwater fish populations have drastically declined by 76% around the world since 1970 and megafish populations have decreased by 94% which poses the threat of extinction. The sandfish is currently the largest threatened group in South Africa of the migratory freshwater fish. The freshwater fish is the population most threatened in South Africa amongst all other species of fish which in turn threatens food supply (Bega 2021b).

The next section identifies important economic activities that use the ocean in their day-to-day activities.

3.3. OCEANS ECONOMY ACTIVITIES THAT REQUIRE GOVERNANCE

The ocean is essential for the running and growth of the world's economy, with over 90% of the world's trade using sea routes and providing job opportunities to millions of people globally. Ocean-based activities form part of various industries that contribute to the oceans economy. These activities either directly or indirectly use

marine resources to generate income. The use and benefit that organisations obtain by operations on or around the ocean means that there is governance required to ensure there is no abuse and unsustainable use of marine resources (Reuters Staff 2012).

3.3.1. Activities on or under the Ocean (Findlay 2021)

- Commercial fisheries engage in use and consumption of marine living resources. There are many commercial fisheries operating in Algoa Bay including the squid industry which contributes tremendously to the oceans economy and employment opportunities.
- Recreational use and tourism which is non-consumptive use. The Algoa Bay coastal region is comprised of 40 kilometres of pristine beaches that attract local and international tourists. In addition, the biodiversity and African Penguin species are very popular amongst tourists (Nelson Mandela Bay Tourism 2021).
- Use of ocean space for imports and exports as the Port of Port Elizabeth exports substantial amounts of manganese ore that comes from the Northern Cape and also imports petroleum from other South African Ports. As a leader in the car industry, the Port Elizabeth Port has a large car terminal. It is also well connected within the fishing industry as mentioned in the first point. The Port contains easy and convenient rail and road links with the country's highways and rails (World Port Source 2021).
- Non-living resources used for deep sea mining as the deep sea houses a multitude of different elements that can be extracted such as gold, copper, silver, manganese and zinc. These resources are found in their various raw forms on the sea floor (Omstedt 2020).
- Ship to ship bunkering is the action of supplying fuel to ships by moving it from one vessel to another. This activity has begun recently in Algoa Bay and contributes to the oceans economy by way of job creation (Africa Bunkering and Shipping 2021).

3.3.2. Activities indirectly relying on the ocean

- Leisure activities that contribute significantly to the economy include surfing, diving, sailing and coastal tourism which all are contributing factors to a healthy oceans economy as those involved in the leisure and recreational projects make an elevated use of commercial ocean data (Rayner, Jolly, & Gouldman 2019).
- Vessel repair and maintenance organisations are important as multiple vessel repair and maintenance projects that are Operation Phakisa have been implemented in the country. The aim of this project is to attract more local and international businesses to South African waters and create job opportunities (Transnet National Ports Authority 2021).

3.3.3. Non-commercial maritime industries and services

- Education and training called Maritime Education and Training is a system implemented to provide sufficient quality training and education to those travelling by sea regularly to protect the quality, practical skill set and competency of those travelling by sea to ensure the ships are safeguarded, environment preserved and trade runs smoothly (Crewtoo 2021).

3.3.4. Indirect economic contribution

- The appeal of living near a beach/ocean augments property value of the surrounding houses in residential areas as well as hotel and restaurant appeal as it portrays wealth and affluency. Beach property has investment potential and has positive health implications due to cleaner air than the city as well as providing ample vitamin D (Shoreline OBX 2021).
- Businesses such as vendors benefit from tourism traffic as the higher the tourism inflow in a particular area, the more sales and services can be provided (Coastal Wiki 2020).

The next section outlines ocean governance.

3.4. OCEAN GOVERNANCE

Maritime or ocean governance encompasses formal and informal trade, activities, and actions surrounding managing the maritime industry. It includes both the government and non-governmental sectors. Ocean governance has many layers and is a

consolidated conduct of the policy, procedures and events pertaining to the world's oceans to preserve the environment, ensure sustainable use of the marine and coastal resources and to protect the ocean and terrestrial biodiversity as well as society. Oceans economy valuations are a requirement for ocean governance (Lukaszuk 2019).

3.4.1. A framework for ocean governance

There are governance gaps including inadequate support for area-based management and monitoring regarding marine protected areas. There is a need for governance over the ocean. Rules, regulations and procedures are required to ensure sustainable use of the environment (Chen 2021).

The next section outlines ocean accounts and an ocean accounts framework.

3.5. OCEAN ACCOUNTS

3.5.1. What are ocean accounts?

Ocean accounts are a set of reliable and consistent data regarding coastal and marine environments, and related economic activity.

Ocean accounting frameworks yield countries with metric indicators that look beyond the GDP to gauge the value of the oceans wealth. Ocean accounting procedures recognise and address gaps in knowledge in information necessary for authentication-based ocean policy sets (The Algoa Bay Project 2018).

3.5.2. Overview of the ocean accounts framework

Ocean accounts are inherently a set of tables and supporting information compositions that are arranged according to a conceptual framework that outlines the following (The Algoa Bay Project 2018):

- Relationship between the environment and economy
- Environmental resource stocks and changes thereof that the benefit to society is derived from
- Societal and governance elements affecting the condition and state of environmental resources and benefits that are associated to them.

Marine legislation and law enforcement are necessary for the development and growth of the oceans economy as they ensure that activities conducted in the maritime industry operate sustainably and efficiently. The following section and subsections outline the different types of legislation and law enforcement that exist to govern maritime industries.

3.6. LAW ENFORCEMENT OF COASTAL, MARINE AND ENVIRONMENTAL LEGISLATION

There is awareness of the discrepancy between current legislation and law enforcement; however, international legal instruments have omitted substantial suggestions and recommendations regarding how successful enforcement of national environmental laws could be achieved. Failure or negligence to pay necessary attention to the inspection and monitoring process as well as being unable to enforce procedures for criminal offences, allows for dereliction of effectiveness of environmental laws (Environmental Law Enforcement 2014).

Dumping at sea has seen a surge in recent years. This has affected tourism and marine life. Several birds and turtles have been found dead with plastic in their stomachs (Conserve Energy Future 2020b). This shows a need for legislation to prohibit and stop dumping at sea.

3.6.1. Legislation pertaining to the oceans economy

The legislation and regulations in South Africa that pertain to the oceans economy are listed and briefly outlined next.

Regulations made in terms of Section 8 of The Dumping at Sea Control Act No. 73 of 1980 (Dumping at Sea Control 1980).

The main objective of this Act is to outline substances that organisations are forbidden to dump or discard into the ocean as well as the procedures that are required to obtain a permit for loading. Dumping in the context of this study means the disposal of any substance by a vessel or aircraft.

Ship to ship bunkering is one of the prime causes of oil spills in the ocean (Wankhede 2020). Bunkering causes a disparity in the pH balance of the ocean and contributes to water pollution which causes illness and death to marine life. Marine plants also die as oil spills create a thick layer on the surface of the ocean which prevents sunlight from

reaching them and prohibiting photosynthesis (Heron 2019). There is a need for legislation preventing oil spills from occurring.

Marine Pollution (prevention of pollution from ships), Act No. 2 of 1986 and Regulations under the Prevention and Combating of Pollution of the Sea by Oil Act 1984 (RSA 1986)

This Act outlines all the rules and regulations that a ship carrying chemicals needs to adhere to, in order to prevent spillage and pollution.

Marine Pollution (control and civil liability) Act No. 6 of 1981 (RSA 1981)

The purpose of the Act is to ensure the protection and preservation of the marine environment from pollution by oil, toxic chemicals and other harmful liquids and substances. The Act aims to provide for the fight against ocean pollution to prevent damage caused by oil spills and other dangerous substances; and to ensure that there is liability held on the part of those found in contravention of the legislation.

Marine Pollution (intervention) Act 64/1987 (RSA 1987)

The Act outlines the International Convention regarding the intervention on the high seas in cases of oil spills and marine life affected by oil pollution as well as the procedure pertaining to the *Intervention on The High Seas in Cases of Marine Pollution by Substances Other than Oil 1973*.

National Environmental Management Act 107 of 1998 (NEMA) (Centre for Environmental Rights 1998)

The Act outlines a framework for good management practices for all development activities and promotes certainty with regards to decision making concerning the environment. It also promotes public participation in environmental governance.

National Environmental Management Waste Act 59 of 2008 (NEMWA) (Centre for Environmental Rights 2008)

The NEMWA act focuses on honing the law aimed at regulating waste in order to protect society and the environment. The prevention of pollution is done by providing specific waste management measures, monitoring and controlling the licensing of waste management activities and providing for compliance and enforcement of the laws in place.

Marine Spatial Planning Act 16 of 2018 (MSP) (RSA 2018)

Marine spatial planning aims to connect multiple users of the ocean. The aim of this act is to provide a framework, development and institutional arrangements for marine spatial planning in South Africa. It also aims to implement an MSP plan and governance for the use of the ocean.

National Environmental Management Biodiversity Act 10 of 2004 (MARINE TOPS ACT) Threatened or Protected Marine Species Act (Centre for Environmental Rights 2004)

The TOPS Act aims to restrict the permits that are issued for activities that are a threat to endangered species and to provide for the registration of game farms and captive breeding operations. This is also provides protection for populations of threatened species.

Marine Living Resources Act 18 of 1998 (MLRA)

The Marine Living Resources Act (RSA 1998) focuses on the conservation of the marine ecosystem, the sustainable use and protection of marine living resources whilst also exercising control over marine living resources in a fair way that is beneficial to society.

National Environmental Management Biodiversity Act 4 of 2004 (NEMBA)

The National Environmental Management Biodiversity Act is structured to manage and conserve biological diversity in South Africa and the use of indigenous biological resources in a sustainable manner. They are also in charge of creating international agreements regarding natural biodiversity that affects the country's natural resources and economy.

International Convention for the Prevention of Pollution from Ships/ MARPOL 73/78

MARPOL is a convention that has rules and regulations to mitigate and prevent ships and vessels from pollution by accident, operationally or incidentally (International Maritime Organisation 2020). There are six annexes of MARPOL:

1. Regulations for the Prevention of Pollution by Oil
2. Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk
3. Prevention of Pollution by Harmful Substances Carried in Sea in Packaged Form

4. Prevention of Pollution by Sewage from Ships
5. Prevention of Pollution by Garbage from Ships
6. Prevention of Air Pollution from Ships.

The above legislation is vital and must be enforced accordingly. There are many agencies in place to ensure that the environmental legislation is met.

3.6.2. Law enforcement agencies

In 1998, the South African Maritime Safety Authority (SAMSA) was formed under the SAMSA Act 5 of 1998 and is the current law enforcement agency that has jurisdiction in South Africa. The goals of the agency encompass safeguarding lives and property of those at sea as well as preventing and reducing pollution and unlawful behaviour from ships and vessels in the marine environment and maritime sector. SAMSA has been tasked with the implementation of the following:

Management and administration of the Merchant shipping (National Small Vessel Safety) Regulation 2007, as amended (the Regulations).

SAMSA's mandate also includes inland waterways that are accessible to the public of South Africa and polices the safety of boating.

Carrying out the Long-Range Identification and Tracking of ships that are along the coast of South Africa.

The long-range ships observation system aids in ensuring that the coast of South Africa is safe from increasing lawlessness and crime at sea, with emphasis on the pirate attacks that have occurred along the east coast of Africa (SAMSA 1998).

3.6.3. Customs and excise officers and the South African Revenue Service

Customs and excise officers are in charge of ensuring that the correct duties are paid, and are tasked with inspecting people, vessels and aircrafts. South African Revenue Service (SARS) is in charge of collecting revenue and ensuring that there is tax law compliance. Both entities oversee that the relevant and correct e-filing documents and excise submissions are timely and up to date. They are also in charge of verifying letters to trade (SARS 2020).

3.6.4. The South African Police Service

The South African Police Service (SAPS) is the current national police force and they are divided in consonance to the provincial borders (SAPS 2020). They work with the Environmental Management Inspectorate (EMI or Green Scorpions) to govern and monitor non-compliance to marine and coastal legislation (as in the context of this study). The EMI or Green Scorpions were established by the National Environmental Management Act of 2008. Some of their tasks involve investigating, questioning of witnesses, obtaining evidence such as videos and confiscating objects, substances and waste. They are also in charge of inspecting ships, vessels and aircrafts as well as handing out fines and apprehending individuals that have been found in contravention of any laws (RSA 2008).

3.6.5. Current state of compliance to coastal, marine and environmental legislation in South Africa

On 19 October 2006, the SAMSA fishing safety indaba reported on some of the non-compliance incidents that were faced by the agency such as vessels not complying to area restrictions, inadequate law enforcement, violation of navigation area by captain of ship and incorrect certification (SAMSA 1998).

3.6.6. Department of Fisheries, Forestry and Environment

The Department of Fisheries, Forestry and Environment (DFFE) is the governmental department that is tasked with overseeing that all public and private operations are functioning legally and conducive to the environment and society. Their strategic objectives are to provide leadership, facilitate effective governance, international relations, as well as environmental awareness (RSA 2021a).

The DFFE structures and implements a legal regime that includes licensing and authorisation aimed at law enforcement and compliance with environmental law, and promotes oceans and coastal conservation. Green economy projects in the environmental sector have become priority which highlights that chemical and waste management policies and legislation are implemented and enforced in compliance with chemicals and waste management authorisations (RSA undated).

3.6.7. Transnet National Port Authority

Transnet National Port Authority (TNPA) is responsible for managing the eight commercial ports along the South African coastline. The eight ports include Durban, Richards Bay, East London, Ngqura, Port Elizabeth, Mossel Bay, Cape Town and Saldhana. TNPA facilitates trade and encourages economic growth and is responsible for the provision of port services and may enter into agreements or licence other parties (Transnet 2010).

3.6.8. South African National Parks

In 1926 the South African National Parks (SANParks) body was established to manage South Africa's national parks. SANParks attracts a great deal of tourism and manages

19 parks. They are involved in the conservation of marine protected areas, environmental conservation and fight against rhino poaching. Their aim is to create environmental awareness and ensure that the natural resources of the Algoa Bay region are used appropriately.

SANParks is also involved in developing the local communities that are close by to the national parks and aim to boost the socio-economic state of these areas. Their People and Conservation specialists thrive at teaching communities how to use water efficiently and the importance of environmental conservation (SANParks 2021). There are many National parks in throughout South Africa, as illustrated in the map in Figure 7.

FIGURE 7:
SANPARKS AROUND THE COUNTRY



Source: SANParks 2021

The next section describes the structure of Algoa Bay area as well as its uniqueness and rich biodiversity.

3.7. THE ALGOA BAY REGION

The Algoa Bay region is located in the Eastern Cape province of South Africa, adjacent to the coastal city of Port Elizabeth (South African History Online 2019). The actual bay is divided in two groups, that contain three islands each, namely the St Croix Group and the Bird Island Group (BirdLife South Africa 2015).

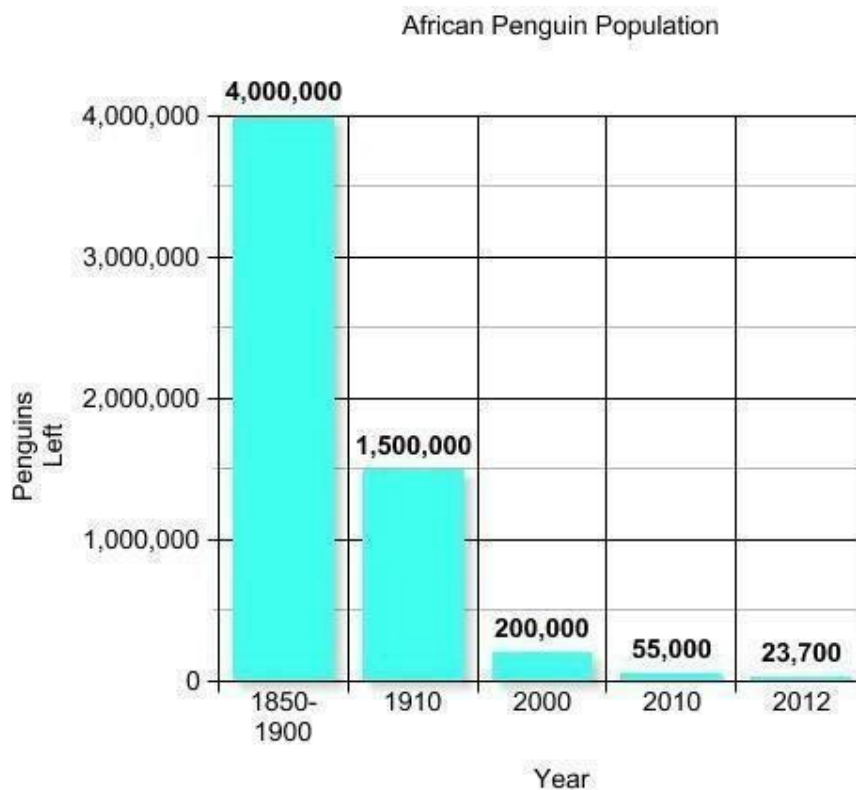
Since 2001, Algoa Bay is referred to as an Important Bird and Biodiversity Area by Birdlife International. In recent times, the rich biodiversity of the region has come under threat due to the maritime industry not adhering to rules and regulations set out by law which has seen the depletion of African penguins and other marine life due to oil spills and environmental hazards posed by these industries. All pertinent domestic legislation applies due to the waters in the Bay being a territorial part of South Africa. This legislation includes the Marine Traffic Act, 1981 (Act 2 of 1981), the National Ports Act, 2005 (Act 12 of 2005), the Marine Living Resources Act, 1998 (Act 18 of 1998),

the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) and the significant amount of environmental legislation that stems from the NEMA, for example, the Integrated Coastal Management Act, 2008 (Dorrington et al 2018). Despite the legislation being clear and concise, there is still a lack of sensitivity and compliance which is harming the Algoa Bay region.

3.7.1. St Croix Group

The St Croix Island is only 12 hectares in size but is home to the largest breeding colony of African penguins in the world. The species is endangered and has decreased by 70% in 10 years. The threat to their existence comes from oil spillage caused by bunkering and overfishing due to large scale commercial fisheries that are given rights to fish near their habitat (Raggie Charters, 2021a). This hinders their food supply (Worldwide Experience 2019). Their decline is illustrated in Figure 8 below.

FIGURE 8:
DECLINE OF AFRICAN PENGUINS



A-Z Animals

Source: African Penguins 2021

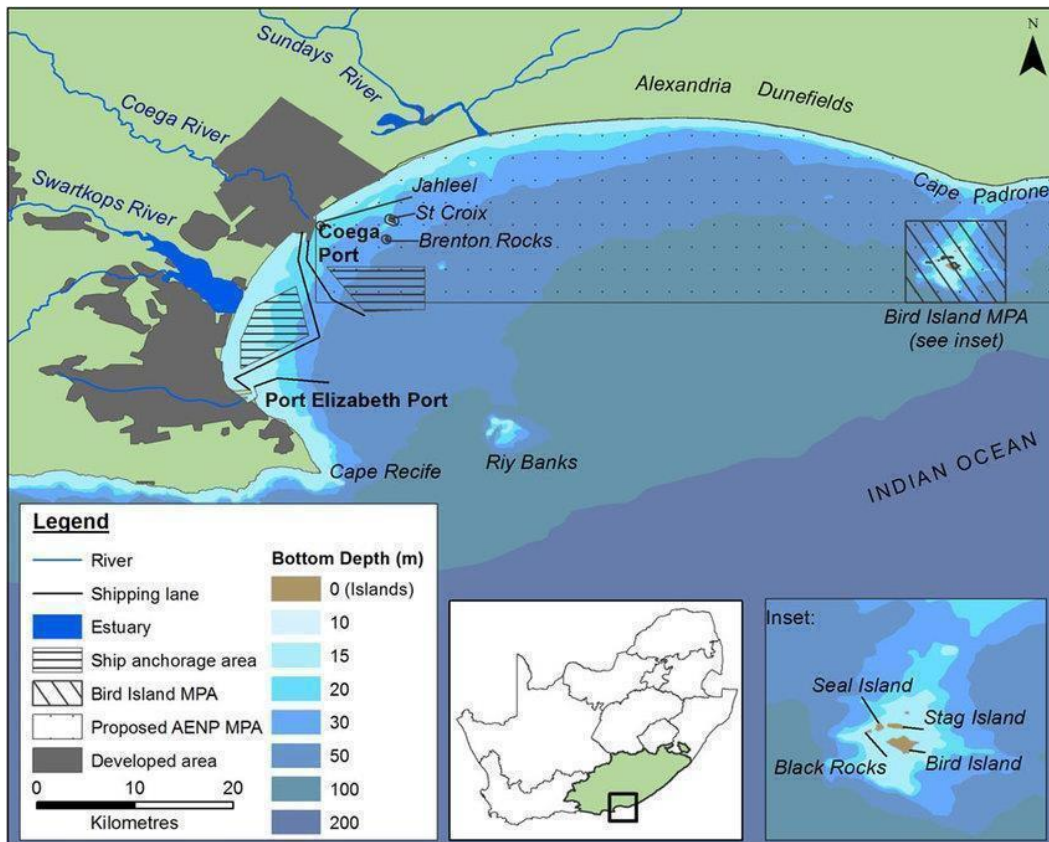
3.7.2. Bird Island marine protected area

Bird Island marine protected area (MPA) is 19 acres and is a group of islands, namely Bird Island, Stag Island, Seal Island and Black Rocks with surrounding reefs that are home to a large population of abalone (University of Cape Town (UCT) 2021).

3.7.3. Marine protected area

A marine protected area comprises an area of habitats, including the open ocean, coastal areas and estuaries. MPAs are areas where economic and recreational activities are managed to protect and preserve natural resources and animal life (MPA Forum SA 2021). There are many marine protected areas in Algoa Bay. The Addo Elephant National Park has recently been declared as an MPA which will preserve endangered penguins, increase fish populations and attract more tourism (Rogers 2019). The coastal area of Addo Elephant National Park spans between the Sundays River Mouth and Bushman's River Mouth. It encompasses the Alexandria Dune field which is the largest coastal dune field in the southern hemisphere and is a lucrative tourist attraction. Bird Island and St. Croix Island in Algoa Bay have formed a substantial part of the Addo Elephant National Park since the year 2005. There are five areas that need conservation in the MPA of Algoa Bay and they are named as follows and shown below: estuaries, off shore, rocky shores, sandy shores and soft sediments (MPA Forum SA 2021).

FIGURE 9:
MARINE PROTECTED AREAS IN ALGOA BAY



Source: Plön 2021

3.7.4. Whale Heritage Site

Raggy Charters, a licensed boat-based tour operator in Algoa Bay, has encountered various wildlife in the bay during their whale and dolphin watch sightings. Species which can be seen in the region are humpback whales, southern right whales, Bryde's whales, bottlenose dolphins, common dolphins, humpback dolphins, African penguins, African black oystercatchers, Cape gannets, Cape fur seals, Cape cormorants, white-breasted cormorants, various shark species and various pelagic birds including terns, skuas, petrels, shearwaters and albatrosses (Raggy Charters 2021b). Port Elizabeth has been declared a Whale heritage site thanks to the hard work and perseverance of Raggy Charters which also aims to boost tourism.

There are many activities taking place in Algoa Bay that contribute substantially to the oceans economy that are also indicated in the next section.

3.8. TYPES OF OCEANIC ACTIVITY IN ALGOA BAY

3.8.1. Commercial fishing

Marine and inland fisheries in South Africa are diverse due to the rich ecosystems contained therein. There are many different species of fish caught and used locally as well as exported. Commercial fishing contributes exponentially towards the oceans economy and also adversely to marine life populations. There are squid fisheries and pelagic fisheries as well targeting of anchovy, sardines and herrings to name a few. Port Elizabeth and Mossel Bay are allowed 6% of allowable catch of hake by an inshore trawl fishery. Trawling nets are very dangerous to rich ecosystems as they drag on the ocean floor and damage the species and systems in the way. The squid industry also thrives in South Africa and Algoa Bay and contributes significantly towards the oceans economy whilst also creating jobs for local fishermen (Parliamentary Monitoring Group 2020).

3.8.2. Tourism

Whale watching, and penguin sittings are very popular amongst the tourists that visit Port Elizabeth. The pristine beaches that have received Blue Flag ratings as well as the diving sites in the Nelson Mandela Bay are of stellar quality with unique reefs and a vast variety of species which are also very popular amongst tourists (Nelson Mandel Bay Tourism 2021). This influx of tourists helps to uplift and support local businesses financially in the surrounding area.

3.8.3. Aquaculture

Aquaculture, also known as aquafarming, is the farming of fish, crustaceans, molluscs, aquatic plants, algae, and other organisms. The Department of Forestry, Fisheries and Agriculture have approved the sea-based aquaculture development zone in the Algoa Bay region to improve the economic state and boost job creation. Fish farms do however emit harmful waste and two major sources of solid wastes in aquaculture are uneaten feed and various undigested substances, which are passed through as faecal waste (Dauda, Abdullateef Ajadi, Tola-Fabunmi, & Akinwole 2020). This waste has a toxic and harmful effect on the ocean, marine life and society.

3.8.4. Powerships

A powership is a special purpose and intricately structured ship, on which a power plant is installed to serve as a power generation resource to improve the power crisis of the country (Lilley 2015). Karpowerships aim to improve loadshedding and the economic state of the country that has been weakened by Covid-19. The Port of Ngqura has been named to possibly house a Karpowership; however, the high temperatures of the water caused by these powerships will kill many species of marine life and ecosystems. The gasses emitted will also deplete the quality of air for terrestrial animals and society (Carnie 2021a).

There are also many non-profit initiatives that take place in Algoa Bay with the goal of improving livelihoods and environmental conservation. FishFORCE is one of those initiatives and is explained in the next section.

3.9. FISHFORCE

FishFORCE is a project by the Faculty of Law at Nelson Mandela University created in 2016 in collaboration with the Norwegian Ministry of Foreign Affairs which works to address many social and economic ills as outlined in the United Nations Sustainable Development Goals (SDGs) (Nelson Mandela University (NMU) 2021).

Some of the challenges include the following (NMU 2021):

Goal 1: Eradication of poverty which aids the protection of marine living resources from illegal harvesting, which allows small-scale fisheries to have more fish and marine resources to harvest. Community members are also trained and educated on how to fish which allows them to acquire jobs and provide for their families.

Goal 2: Zero hunger aims to minimise and reduce fisheries crime and regulating fisheries which will help the surrounding communities.

Goal 8: Job creation and economic growth by the training of law enforcement officers which will assist in stopping and minimising organised fisheries crimes which will allow for more productive legal economic activity.

Goal 14: Life below water describes illegal fishing as one of the greatest threats to marine life in addition to global warming and pollution. The eradication and prevention

of overfishing and poaching will assist in sustaining fish populations and preserving MPAs.

The next section outlines the negative consequences of activities that take place in Algoa Bay.

3.10. THREATS POSED DUE TO ACTIVITIES IN ALGOA BAY

Table 3 indicates the common activities conducted in Algoa Bay as well as the incidents of non-compliance that is often reported which poses environmental threats.

TABLE 3:
ACTIVITIES AND THREATS CONDUCTED IN ALGOA BAY

Activity	Threats
Poaching	Poaching of marine life is the illegal hunting and fishing of marine protected species or those species prohibited by law. The abalone is the most commonly poached species in the Algoa Bay area as they are very valuable. Obtaining abalone is difficult and requires time. This contributes to the high value of this species (SAMSA 2017).
Overfishing	Overfishing is the action of catching more fish than can be naturally replenished or allowed by marine legislation. This is done by using incorrect fishing gear and catching species by an action of by-catch. Lack of knowledge of the existing legislation pertaining to the maritime sector and poor law enforcement are also contributing factors (World Wildlife Fund [WWF] 2021a).
Illegal fisheries	Illegal fisheries consist of vessels that do not have a permit to fish or operate in an area. Many vessels in the Algoa Bay region have been reported as illegal fisheries. They have been Chinese vessels reported without a permit or agreement as well as local vessels such as The White Rose that have been caught fishing in a marine protected area (King 2016). Illegal fisheries are non-compliant because of their illegal harvesting of fish breaching regulations regarding the type of fish, quantity or size (Smith 2004). Incidents involving tourists' activities can include entering prohibited areas, not respecting the environment, pollution or taking certain types of fish without a permit (Smith 2004).

Activity	Threats
Ship to ship bunkering	<p>Ship to ship bunkering is the supplying and transfer of fuel for use of vessel ships and encompasses the loading and distributing of fuel. There is no special permit that is a requisite for bunkering at sea unless the organisation is operating close to shore (Wankhede 2020). Oil spillages are an operational risk and have known to occur in Algoa Bay. Oil spills can have a detrimental effect on the ocean, animal life, fisheries, and on water sports and tourism. Oil spills are a leading cause in the extinction of African Penguins in South Africa and all over the world. Over the period of three years bunkering operations have increased in Algoa Bay and this has also seen many an international vessel entering the Port Elizabeth ports. SAMSA and TNPA have issued permits to these vessels without informing the public and despite many warnings from marinebiologists.</p>
Shark finning	<p>Shark finning is the act of mutilating and de-finning sharks and thereafter throwing them back into the ocean alive, after which they drown and wash up on the ocean shores. The act of finning is illegal in South Africa but evidence from South African fishermen who have photographed mutilated sharks has proved this activity has taken place in South African waters. This is due to illegal fishing by foreign vessels, three of which have been fined by the South African government for de-finning sharks (Carnie 2009). Shark fins are very lucrative in countries such as China. A de-finned and mutilated shark was discovered in Port Elizabeth in 2009 but no incidents have since been reported.</p>

The next section is a brief summary of Chapter 3.

3.11. SUMMARY OF CHAPTER

There are many role players in the oceans economy that play a significant role. Those that carry out operations in Algoa Bay and the rest of South Africa have multiple Acts of legislation that outline and govern their activity.

Law enforcement agencies as outlined in Section 3.6.2 indicate the different parties that play a role in enforcing legislation and ensuring that the environment and community are protected.

The vast biodiversity and intricate structure of Algoa Bay is in need of protecting as there are many operations taking place within the region's waters that pose a direct and indirect threat to marine resources.

The safeguard measures need to be put in place by organisations and that is why a sound corporate governance framework needs to be implemented by owners and managers.

Chapter 4 presents the analysis and results of the data collection, in accordance with the nature of the qualitative methodology utilised for the study and outlined in Chapter 1.

CHAPTER 4

ANALYSIS AND INTERPRETATION OF FINDINGS

4.1. INTRODUCTION

The previous chapter, the oceans economy, discussed the role players in the oceans economy in the different sectors as well as ocean governance. The chapter then further outlined the Algoa Bay region and certain industries that have environmental impacts on and make economic contributions to the oceans economy which put into perspective how each industry plays a part in the betterment and destruction of the oceans economy. Marine legislation and law enforcement were then highlighted to determine what the existing laws are.

This chapter discusses the data collected from the participants and how it answers the research problem and secondary objectives that were outlined in Chapter 1. The chapter is divided into 5 sections that are targeted to address the research objectives. Each section discusses the findings and responses from participants obtained during the interview process based on the relevant theme. The theory of the firm (ToF), as discussed in Chapter 1, is applied in this chapter by explaining why non-compliance to marine and environmental legislation is so rife, taking into consideration organisations' prioritisation of profit maximisation. The next section describes the participants used in the interview process of the study.

4.2. PARTICIPANTS

Chapter 1 discussed and outlined the research methodology of this study and addressed how participants were recruited for the data collection process. Anonymity of participants was maintained throughout the data collection process and interviewees were reminded of this aspect throughout their respective interviews. Permission was granted to record the discussions held and for participant responses to be used in this study. Interviews were recorded and later transcribed to create transcriptions for each recording to be used in the study and participants were identified by numbers rather than names. The data was then coded and examined using Atlas.Ti® software.

Although ample participants were successfully recruited to partake in this study, many were reluctant to participate due to the subject matter of the study which many found to be intimidating and risky. The title of the study was seen to be unnerving and contentious for certain individuals that interpreted the intention of the study being to investigate their adherence to laws and regulations which could place their organisations in an unfavourable light or land them in a difficult position with their organisations.

Table 4 outlines the characteristics of those who participated in the interview process. Gender differences amongst participants were important as some research has shown that opinions of genders differ regarding environmental issues and concerns, particularly local threats that could have potential health risks to society and animals (Ballew, Marlon, Leiserowitz, & Maibach 2018).

TABLE 4:
PARTICIPANT CHARACTERISTICS

Age	21 to 50 years	50 years and older
Male participants	4	5
Female participants	8	3

Of the above participants, six are not originally from the Algoa Bay region and have lived there for less than 15 years. The next section discusses the data saturation met during the interview process.

4.3. DATA SATURATION

The primary data of this study were obtained from 20 interviewees, through semi-structured interviews with an interview guide as research instrument. Data saturation is the point in data analysis whereby no new data is obtained (Dworkin 2012). Data saturation was achieved when interviewees were not providing new insight or revealing new information to the interviewer based on the themes of the interview guide. Data saturation was met after interview 16 as all themes were adequately covered by then; however, four more interviews were conducted thereafter to ensure reliability.

Table 5 illustrates the themes and sub-themes from which the data was interpreted. Chapter 1 outlined the themes of the interview guide used in the data collection process that was developed to meet the research objectives of the study.

TABLE 5:
THEMES OF STUDY

Theme 1	Environmental awareness
Sub-theme 1.1	Environmental awareness of organisations operating in Algoa Bay
Sub-theme 1.2	Impact of organisational activities on the marine environment and marine life
Sub-theme 1.3	Benefit by organisations from the ocean and effect on the oceans economy
Theme 2	Organisational and marine policies and legislation
Sub-theme 2.1	Current legislation in South Africa pertaining to maritime activities in Algoa Bay
Sub-theme 2.2	Organisational specific legislation and how it affects operations in Algoa Bay
Theme 3	Stakeholders of organisations in Algoa Bay that conduct businesses that are part of the oceans economy
Theme 4	Compliance to policies, laws and regulations
Sub-theme 4.1	Incidents of non-compliance to marine and environmental legislation
Sub-theme 4.2	Punishments in place and law enforcements
Theme 5	Incentivisation and rewarding of good behaviour

4.4. ANALYSIS OF FINDINGS PER THEME

The analysis and interpretation of the findings per theme from the transcribed voice recordings are presented next.

4.4.1. Theme 1: Environmental awareness

The aim of this theme was to determine if organisations operating in the Algoa Bay region are aware of their obligation and role in corporate governance and if they have their own policies and procedures in place that are environmentally friendly and create environmental awareness. This theme encompasses the impact that organisations have on the marine environment when there is a lack of environmental awareness or non-compliance to marine and environmental legislation and how they benefit from the marine resources. Organisations operating in the Algoa Bay region also substantially contribute to the oceans economy and this theme therefore aims to identify their contributions to the country's GDP. Table 6 provides details on the sub-theme, participant responses and the findings reached for Theme 1.

The majority of participants mentioned that organisations are environmentally aware and are very strict with adherence to laws and regulations. The responses indicated that the problem arises with law enforcement agencies in charge of ensuring the regulations are properly adhered to.

Certain organisations also operate and conduct themselves in an environmentally friendly manner called FIP (Fish Improving Process) in order to receive MSC (Marine Stewardship Council) certification. This certification is appealing from a consumer point of view and is an incentive to organisations to enhance their environmental awareness credibility.

Despite the MSC certification incentive and environmentally friendly practices by some organisations, the environmental impact seen on the ocean and marine life is sometimes incidental to the operations taking place and is said to be unavoidable. The importance of having these businesses operating in the Algoa Bay region is for job creation, improved livelihoods of the local community and an increased GDP from a healthy oceans economy which benefits the country's overall economic health. However, the negative impact on the ocean and marine life also has detrimental repercussions to society and marine resources.

There are organisations that disregard legislation and regulations, and there have been incidents reported which are discussed further under sub-theme 4.1.

The impact of maritime activities on the ocean and marine life is discussed in sub-theme 1.2. There are many different industries operating in the Algoa Bay region which include commercial fisheries, ship to ship bunkering and aquaculture.

The impact of the aforementioned activities on the environment can be seen in fish depletion, penguin endangerment and health implications of society. This sub-theme explores the known and potential impacts of ocean pollution due to marine operations either incidentally or purposefully.

Organisations using the ocean for their primary operation not only benefit immensely from the marine resources available to them but also contribute to the oceans economy. Without the ocean and marine resources contained therein, industries such as commercial fisheries, bunkering and aquaculture could not be possible.

South Africa has 22 commercial fisheries sectors which contribute R6 billion per annum towards the ocean economy and create job opportunities by employing approximately 27 000 people and tackling poverty. Aquaculture and fisheries contribute to the livelihoods of approximately 540 million people (Isaacs 2017).

The maritime sector contributes vastly to the country's GDP but can also cost the country a lot of money. Pollution, depleted marine specie populations and oil spills can hinder operations in the Algoa Bay and decrease tourism (Raggy Charters 2019).

It has been reported that clean and unpolluted beaches are worth approximately R10 million each year and the country has spent under R100 million maintaining and cleaning beaches (Conversation International 2019). The cost of maintenance due to pollution outweighs the benefit which can harm the economy. This proves that clean up initiatives are needed. The impact of maritime industries on the oceans economy is discussed in sub-theme 1.3.

TABLE 6:
THEME 1: ENVIRONMENTAL AWARENESS

Sub-theme	Participant's response	Interpretation of findings and comments
<p>Sub-theme 1.1: Environmental awareness of organisations operating in Algoa Bay</p>	<p>Participant 1: "Ja, we obviously have policies and procedures in place, we have policies with regards to the vessels, we have policies and procedures in place with regard to the factory as well. So, we have our maintenance team and then we have got an operations team who looks after the operational side and getting it to sea, and then we have the skippers on board the vessels and every year they have to sign the policies and procedures. So, we obviously make them aware of the environment and then they need to adhere to that as well. They also have to fill in certain documentation on the vessel; once a skipper goes to sea they have to fill in documentation and that gets checked by us because we have to present it to SAMSA when they do our yearly inspections as well. So, in that way we try and sort of educate all of them to work and adhere to all of those environmental standards."</p>	<p>The responses from the participants 1, 4 and 20 clearly indicate that environmental awareness does exist in their organisations and are improving. The Coega Development Corporation in Algoa Bay ensures that there is compliance by organisations operating in the Special Economic Zone (SEZ). The primary motive that drives their environmental awareness is not to preserve the environment but rather to avoid being held in contempt of the law which will hinder their operations. Environmental consciousness does not only refer to appearance and policy documents but also to behaviour and actions.</p> <p>An SEZ is an area whereby trade laws are different to the rest of the country and are situated at the country's national borders.</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>Participant 2: "Think you would be surprised. I think that a lot of businesses and communities are very environmentally aware, in fact they don't have options, so that they know what they are doing is detrimental to their health, but they don't have any other option. I think we are more environmentally aware than we give ourselves credit for. I think we have some of the best environmental legislation in the world. Our legislation in many cases, our water programme is labelled as one of the top three pieces of legislation in the world, we have many, many pieces of legislation that are fantastic – SANBI is another one that is in the top five in the world – which shows that we are very aware from a legislation point of view about the impact and well-being of the environment, but enforcement is where we fall flat and our police officers are not trained in that aspect, and not only enforcement but options for people. I think that is where we are lacking."</p> <p>Participant 4: "Well from what I can see within the company, and the research and</p>	<p>The response from participant 2 indicates that, from a legislation and awareness perspective, the Algoa Bay area and South Africa are quite progressive and remarkable. The negative impacts on health and marine life are evident and society as well as organisations are aware of the repercussions that pollution and abuse of the environment have. Legislative awareness also appears positive from the participant's response; however, the response of law enforcement being a critical factor contributing to non-compliance to marine legislation has been mentioned several times by participants and is discussed further in sub-theme 4.2.</p> <p>Participant 4 mentioned how the organisation includes environmentally friendly business</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>involvement that the company is involved in, I think they are extremely aware of the environmental impact. I have read the environmental policy and it is about a 15-page document which is quite detailed. But from what I do as barge master, we are dealing with garbage, we are dealing with fuel transfer, we are dealing with waste water on board the vessel – and it is quite comprehensive. And having come from oil tankers previously I know that it is very much in line with legislation to avoid repercussions.”</p> <p>Participant 4: “The company policy, whenever I put in a purchase request for any item, it is built into the requisition, I type all the details in, and when the requisition goes through to the office, the office then submits it to the supplier, and the bottom of it as part of our standard terms and conditions, is to reduce plastic in all aspects and replace it with biodegradable products. There is definitely a greater awareness and we have now seen it also with COVID, that people have realised the interconnectedness; if you don't</p>	<p>practices in their operations by reducing plastic use in their operations and also touched on the impact that the Covid-19 pandemic has had on the increased awareness that companies and society now have for the environment and a new standpoint regarding how important the environment is, particularly the ocean, for the well-being and operations of maritime industries.</p> <p>Covid-19 has led to the economic downfall of many organisations which has left them desperate to boost their sales and attract customers and investors. This increases their environmental awareness and cognisance as their operations depend on the ocean and marine resources.</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>take care of the planet more of these diseases and cyclones and adverse weather events are zero approaching.”</p> <p>Participant 20: “We have certainly found that – and I am going to talk over my experience of the last 16 years at Coega, is that there has been an improvement, or an increased awareness on environmental legislation – and that goes from investors that are planning to come into the SEZ, so in other words they haven't yet established, so they are still proposing business in the SEZ – to those that are actually constructing their industries, and then those that are operational. There is still a long way to go but the awareness has improved”</p>	<p>Participant 20 mentioned that there is still a long way to go which is indicative of companies not always following through with their own policies and still needing to work on their actions.</p>
<p>Sub-theme 1.2: Impact of organisational activities on the marine environment and marine life</p>	<p>Participant 4: Admitted to the following environmental impact from the businesses operations:</p> <ul style="list-style-type: none"> • “The sea, through (legal) discharge to sea of low-concentration oily water; ballast water; and biofouling control systems on hulls 	<p>The operations have an effect not only marine and terrestrial life but also on human. Smaller marine life eats and ingests toxins which are then preyed on by larger predators and this eventually becomes the seafood that we eat. This can lead to health hazards such as hormonal imbalances, infertility and even kidney damage (Pizzorno 2017).</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<ul style="list-style-type: none"> • The atmosphere, through burning of fuels, and use of volatile and toxic hydrocarbons • Land, through disposal of waste and supply chain activities, as well as mechanical effects such as bank erosion and anchoring” <p>Plastic pollution</p> <p>Participant 8: “Many microplastics are swallowed by fish which in turn are eaten by other species and the chemicals in those plastics continue to leech out and may affect the animals that feed on them, change their rates of growth and make them more vulnerable to diseases. So, it really is, plastic pollution that has an impact and it is important to educate people to try and stop that, to ameliorate the impact.”</p> <p>Participant 13: “What has been found is micro plastics which are the very small bits of plastic which are even found in human systems. The problem with micro plastics is that it accumulates, it has been found in various fish</p>	<p>Plastic pollution and dumping pose a severe threat to the environment. A substantial amount of plastic pollution is washed into the ocean from rivers, and a participant mentioned that ‘85 and 95% of ocean garbage is actually washed into the ocean from rivers’. Vessels operating in the oceans are also responsible for this type of pollution. Fishing gear is amongst the pollutants found amongst the plastics. Turtles eat species that float, which is mostly jelly fish and various other plankton which forms part of their main diet. Due to lots of floating plastic, confusion arises, and turtles ingest the floating plastic instead. There have been many related deaths with turtles due to plastic ingestion (WWF 2021b).</p> <p>South Africa has been rated as the 11th worst marine plastics polluter in the world, mainly as a</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>species, even in penguins. So, there have been studies that looked at the fact that micro plastics can carry pathogens, so even though they themselves can be inert, they can be a pathogen carrier.”</p>	<p>result of poor waste management. The economic harm caused by plastic pollution is that it damages vessels and hinders water intake. Polluted beaches decrease tourism as an area loses its value and aesthetic appeal (Bega 2021a).</p> <p>Whales have also been reported washed up with plastic found in their stomachs, whether it is a matter of them being unable to digest the plastics or being unable to work it out of their system, the substance being the larger macro plastics is what they have been known to directly die from. The plastics accumulate in the whale's stomach which then causes an obstruction of the bowels, preventing digestion and causing death by starvation (Irfan 2020). Whales are very important for the ocean as their swimming from the bottom of the water to the surface for a breath and back down again stirs up the water by bringing cold water to the surface and that cold water is full of nutrients, it hits the sunlight and phytoplankton begins to bloom and that creates food for all different types of fish. They are also fertilisers, theirwaste let off at the surface sinks down, and feeds everything also causing plankton to bloom. Approximately 50-85% of the oxygen we receive comes from plankton (Earthsky 2015).</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>Alien Invasive Species</p> <p>Participant 15: "So the ballast is what keeps the ship afloat and it brings in a lot of different species, so alien species from another port, and in the past they happily did it, and that is where most of the alien species in ports have come from. Algoa Bay has about 13 species at the moment, alien species."</p>	<p>Microplastics also pose a threat which forms when macro plastics are broken down into smaller components.</p> <p>The responses clearly indicate that plastic pollution impacts humans as well which poses a risk for the health and well-being of society. Although no direct fatalities have been reported, studies are still being done to determine the health implications of microplastics on humans.</p> <p>Microplastics may obstruct the gastrointestinal area of humans and can also pose a similar threat to smaller marine organisms which leads them to believing that they shouldn't eat which causes starvation (Royte 2021).</p> <p>Vessels entering the Algoa Bay area from other countries and regions expose a threat of introducing alien invasive species to our ecosystems.</p> <p>Alien invasive species can change, damage and harm marine ecosystems by:</p> <ul style="list-style-type: none"> • causing the extinction and endangerment of particular marine species • disrupting and deranging coral reefs ecosystems

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>Overfishing and By Catch (Impact)</p> <p>Participant 13: "Which is the by catch. And so that is endangering those different species. And then you have the other nets that are just on either side of the vessels, that are also just kind of dragging along as the vessel moves and they are catching whatever they catch. And so, it's really sad"</p> <p>Participant 17: "They didn't know about it being such a haven for all sorts of marine life, the whales move through the area and can be caught in the nets, four different species of whales that</p>	<ul style="list-style-type: none"> • polluting and tainting water quality • breeding of indigenous species with alien invasive species as well as the potential threat of competition amongst the two species • escalating and spreading dangerous diseases. <p>Invasive species can be linked to the depletion of fish populations, which has negative human health implications due to the diseases and a decline tourism due to the ruin of coral reefs (OECD 2020).</p> <p>By-catch is the act of unintentionally catching species incidentally and has become an increasing problem in recent time which causes depletion of fish and aquatic populations.</p> <p>Fish population marine resource depletion has also been very evident as a result of overfishing and by-catch by commercial fisheries. Fish populations cannot replenish quickly enough which is unsustainable to the ecosystems they belong to. By-catch also proves to be wasteful as the species caught incidentally are often discarded.</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>are quite common, but there are other species of whales that come through. There are two species of dolphin that come through in large groups. So, they were not familiar. So, these types of interactions we have can then point them to actually please really research the environment and understand why it is important that we take cognisance of what the footprint is in this, whatever industry it is.”</p>	<p>Trawling nets used by commercial fisheries have been known to scrape the bottom of the ocean floor and unintentionally catching species including sharks, dolphins and whales and destroying ecosystems. Whales and dolphins are often caught and trapped in trawling nets which leads to suffocation. The above response is a contradiction to environmental awareness as it is clear that organisations are not aware of all the species they could potentially impact and disrupt.</p> <p>Overfishing is the process of fishing beyond the required and allowed conditions and in doing so, disturbing eco-systems and depleting fish species populations in the ocean. The effect of overfishing also affects local fishermen and penguin's food supply.</p> <p>Endangered species as a result of overfishing in Algoa Bay and South Africa (WWF 2021c):</p> <ul style="list-style-type: none"> • African penguins have become endangered and face extinction in the St Croix island due to overfishing and oil spillage. • Abalone populations are depleted as a result of illegal poaching and poorecological circumstances.

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>Bunkering (Impact)</p> <p>Participant 19: "So, it is such a rating of our resources that is taking place in the marine environment, that the things are struggling and apart from that you have the bunkering as well, and apart from the oil spills you have the movement of the vessels across the feeding areas of the penguins. So, the vessels will move to be filled, and move out, and in that area where they move is where the penguins feed as well. And then those bunkering ships are always on, they have to keep their fuel on, the</p>	<ul style="list-style-type: none"> • Line fish resources are ranged from severely endangered to sustainable. • Deep-water hake populations remain diminished due to overfishing. • The anchovy population level is at nethermost level observed over the past 15 years. • Harders are a leading target of the ocean and are in a depleted state due to illegal netting which has had an impact on the regeneration of the species in recent years. <p>Bunkering is fairly new in the Algoa Bay region and the repercussions of oil spillages have already left a considerable mark in the area. African penguin numbers have drastically diminished in the last decade as a result of oil spillage due to bunkering taking place in the Algoa Bay region near the St Croix island as well as commercial fishing which lessens their food supply by overfishing and noise pollution caused by nearby vessels that cause an immense disturbance to the penguins (Cincinatti Zoo 2021).</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>engines are always running, so that is very low frequency, but constant noise and we don't know the impact on the penguins, but the penguin numbers have really come down drastically at St Croix Island. Oil smells like fish to penguins so many swims right through it."</p> <p>Aquaculture and Agriculture</p> <p>A participant who is an environmental conservationist said: "Straight into the ocean or it gets chopped up and minced up for animal feed and stuff like that. So, the wastage in that... and if you look at areas where there is fish farming, the corals and shell fish in the area, the natural ecosystem that once existed on the bottom or in that area, is just gone, it just can't survive with that fish farm there. So, places have been totally abused in terms of carrying capacity. One littlefish farm in the middle may be okay but totally block out an area with finfish farms and you destroy it completely."</p>	<p>The impacts of fish farming on the ocean can be detrimental. Untreated waste which accumulates and is a product of uneaten food and faecal matter from fish species in ocean cages is released into the sea (Wright, Hutchings, Dawson, & Clark 2019).</p> <p>The response of the conservationist clearly indicates the negative impact that fish farms have on the environment. Aquaculture does contribute to the oceans economy and increases food supply but the amount of waste that is ejected into the environment has negative health implications for surrounding marine life and society.</p> <p>Fish that are bred in fish farms are injected with many hormones which alter their DNA and there are instances where they have escaped the fish</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>Participant 11: "Okay, it is just important to consider. So, the estuarine environment is part of the marine environment and it is part of the Algoa Bay environment, and there is a limit to which the estuaries go and then it turns into a river and then it is no longer part of the marine environment. But what is important in that aspect is for agriculture, there are so many agricultures that are discharging into the Sundays River municipality and there is a lot of fertilizers and inorganic effluent</p>	<p>farm cages and bred with other fish in the surrounding area. Hormones injected into fish during the fish farming operation are essentially used to increase the production of fish, allowing them to grow bigger at a quicker rate. The chemicals used should be used cautiously and carefully preserved and ensure environmental, biological and food safety, as they can severely contaminate the environment which could lead to negative impacts on the health of consumers (Hoga, Almeida & Reyes 2018).</p> <p>There have also been known diseases to arise within fish farms due to poor and unhygienic conditions.</p> <p>Participant 11 outlined the extensive pollution of the environment and the harm that agriculture does to the health of the ocean and in extension the health of society. The harmful chemicals in the water can cause hair loss and damaged skin. Chemical toxins are also carcinogenic and a person ingesting too much is then put at risk (Smith 2020).</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>being discharged into Sundays which is essentially ending up in Algoa Bay. And then you have for example Swartkops Estuary that receives a lot of industrial waste and domestic waste. So, at the end of the day the estuaries also act like a filter but if the estuaries are polluted it also indirectly influences the environment in Algoa Bay.</p>	
<p>Theme 1.3 Benefit by organisations from the ocean and the effect on the oceans economy</p>	<p>Operation Phakisa-NDP 2030</p> <p>Participant 2: "So, in 2010, when Zuma was still president, he implemented this project called Operation Phakisa now Phakisa means "hurry up". And the point of the project was that he wanted to unlock the oceans potential. Because we are a coastal country or most of the country is on the coast at least, well not most of it but you know what I mean, there is a lot of potential, that has not been unlocked to get economic income from the ocean so he wanted to make sure that everybody that could access the ocean and like utilise it as much as possible so the country's economy could grow. That was the main, economic growth was the</p>	<p>Operation Phakisa was introduced by former President Jacob Zuma to create more financial benefit for the country from the ocean. This initiative was created to 'hurry up' the execution of solutions to address problem areas outlined in the National Development Plan (NDP) 2030 such as poverty and unemployment. This initiative has had both positive and negative effects. Positive in the sense of beginning to address inequality and poverty but negative as marine resources could potentially be abused and misused.</p> <p>The responses from the participants clearly indicate that whilst there is great economic potential, the premise of Operation Phakisa is not based on protecting and preserving the ocean and the ecosystems therein which could have a</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>goal. So obviously alongside this he had other little workshops where we could have improved protection, improved management, that sort of thing, so there was some other good things that came out of it including those MPA's that came out of it but in terms of the small scale fishermen now recently myself and a colleague we went and interviewed some people from the Khoisan community and as far as Operation Phakisa they were given fishing rights, however they have not been able to use those fishing rights because they were told all the species names and not the actual names that they know because they are just everyday people they are not scientists, they are not going to know what the species name and the genus name of something is and so on and so forth. They haven't been given a vessel which was promised to them by the government to actually go and fish, they haven't been given money to go fish, they haven't been given training to go and fish so its negligence from the governments side, of there was a</p>	<p>detrimental impact on marine life and society in the long run. The initiative aims to allow more individuals access to the ocean and in turn poses a risk of having unqualified and unskilled individuals harvesting marine resources. Participant 2 also provided evidence which indicated a lack of follow through and management after fishing rights are awarded.</p> <p>This operation could be harmful as ecosystems and marine populations could be mistreated during this process. If there is a sudden depletion of marine life and resources, it would render Operation Phakisa ineffective as the objectives of the NDP 2030 cannot be fulfilled.</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>good intention but there was never any follow through.”</p> <p>Participant 12: “But the thing about Operation Phakisa, we actually published a paper on this, it is quite driven by economic imperative and although marine planning is like embedded and marine protected areas are embedded under Operation Phakisa, at the end of the day all of the activities should be based on the health of the marine environment. Because you can't really go and get as much economic value out of the ocean and if you are just going to deplete the resources! Because at the end of the day you are going to have a balancing effect, where you are not going to have any resources left. So ja, Operation Phakisa, the way it has been structured is not necessarily from an ecosystem-based perspective, and this is what is recommended for appropriate governance, is ecosystem-based management, where everything is managed based on the foundation of the marine environment, as opposed to 'how far are we from meeting this economic goal?' Because as you</p>	

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>have noticed as we really struggling as a nation to reach these economic goals.'</p> <p>Powerships</p> <p>Participant 16: "And it is Eskom actually, the Department of Energy actually – Eskom I have heard doesn't approve fully of it because it's very expensive, a multibillion, I think about 200-billion-rand project. And I think it is too expensive for our economy to afford. So, what happened is this company that is wanting to bring these powerships into the bay is a Turkish company – so it is not even a South African service provider – and again, the way they tried to get through without any legislative approaches is they are trying to go through the COVID 19 loophole. So, there is this whole legislation that during a global pandemic or a state of emergency, some activities can pass development without having passed any form of environmental impact assessments or any form of environmental legislation. So, this is</p>	<p>Powerships are the plan of converting existing ships into special purpose ships to install a power plant that will be a power source. The powerships are owned by a Turkish organisation and will have many negative side effects on the environment, including increasing water temperatures which could lead to the death and depletion of much aquatic life.</p> <p>Even though the project has appeared to be stopped, the Environmental Management Inspectors commonly known by their colloquial name of the Green Scorpions have been investigating false and misleading information that has been put forward to the public and government regarding karpowerships which disregard the National Environmental Management Act (NEMA). Their hopes are to avoid approval of this 20-year project (amaBhungane Reporters 2021).</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>a huge loophole and I don't think it necessarily good, because this is the exact loophole that this powership company has wanted to take. And this was wanted to be signed off by an environmental impact practitioner who has the role of protecting the environment, yet she was saying she will get this development through for them by taking this loophole. So, her strategy was to say that this powership is going to save lives and how will power necessarily save lives? And she was saying it is going to contribute to the economy and all this stuff. But it is a really long-term project, so it is nowhere near going to contribute to the economy during the time of the pandemic. And luckily the Department of Environmental Affairs stopped it in its tracks and they said this is not a medical project then maybe it would have helped the pandemic, but this is an energy related project, it doesn't help much with the pandemic and therefore it cannot go through this loophole. So that is actually very important for your study I think."</p>	

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>Imports and Exports</p> <p>Participant 1: "Well the ocean is our corebusiness, we are in the squid business and we have got 15 vessels that go to sea at fish, so thatis our business - fishing – so we areinvolved in the oceans economy quite a bit, in the harbour here as well, to exports; all our squid is exported in containers. So, we load that onto ships as well, that takes the containers into Europe, Spain and Italy – that is our biggest market – sowe get involved in the oceanseconomy."</p> <p>Tourism</p> <p>Participant 5: "a huge influx of people from Gauteng come in during December to enjoy the beaches. And it is a huge economic flow. The communities on the coast rely onthat for Easter and Christmas – the B and B's are full, the restaurants and that sort of thing."</p>	<p>Import and export trade is very important for the economy and livelihoods.</p> <p>The exporting of resources and selling them to a foreign market, such as businesses or governments in another country, bring money into the country, which augments the oceans economy and the country's GDP (Refer to Table 9).</p> <p>Coastal tourism aids local communities immensely. Participant 5's response emphasises the need for clean beaches for tourist attraction as tourism is a large contributor to our economy.</p> <p>Tourism also contributes to job opportunities. The tourism industry contributes to the South African economy by an amount of approximately 9% adding to the country's GDP (Smith 2021). Approximately 3.4 million tourists came to the Algoa Bay area which brought in R7 billion in revenue. Coastal and marine areas brought in half of the total tourism revenue due to their rich</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>Bunkering (Contribution to Ocean Economy)</p> <p>Participant 8: "Ja. So yes, they have gone ahead, they are doing the work. And what concerns me is I am not sure how many are foreign companies, but they don't employ as far as I know, they don't employ enormous numbers of South Africans. They are not paying harbour fees, they are not purchasing a lot of SA products, so the benefits for SA and for PE as a whole are relatively minor, yet we as citizens of Algoa Bay are taking the</p>	<p>biodiversity. In the same year, tourism attributed to 44,227 job opportunities for the local community (Nelson Mandela Bay Tourism 2019). The penguin sanctuary situated at Cape Recife is a lucrative tourist attraction which emphasises the importance of penguins not only to the environment but the economy as well.</p> <p>Due to the Covid-19 pandemic, tourism arrivals from overseas decreased by 71% from approximately 15, 8 million in 2019. The total number of tourists have declined from almost 24,6 million in 2006 to 12,1 million in 2020. It is thus evident that the Covid-19 pandemic has had a devastating effect on the country's economic state (RSA 2020f).</p> <p>Bunkering has been said to have positive outcomes for our oceans economy but the response from participant 8 contradicts this assumption.</p> <p>The question arose whether the financial gain outweighs the risks associated to the environment and the potential loss of natural resources and biodiversity. Activities like bunkering in Algoa Bay are mostly for the organisational economic gain. They are not necessarily benefiting the economy as there is no evidence that bunkering is contributing to the local economy. A feasibility study is being done to see how much it can</p>

Sub-theme	Participant's response	Interpretation of findings and comments
	<p>risks posed by the industry. If there are oil spills well they could impact on the marine environment, on the wildlife, they could impact on industries, economic activities that are linked to the marine environment such as fishing and tourism, but such incidents will also impact on our way of life. The people of PE make use of the coast, for recreation. We are lucky to live on the shores of this beautiful bay, despite all the plastic pollution that gets washed up, there is an enormous amount of that. So, I don't know the full extent of all these things, but I am on the bunkering working group, so there are organisations that are concerned about bunkering and how it crept in as an industry in the bay. And we were told at one stage that these bunkering organisations didn't even feel that they needed to pay tax in SA because they are doing this offshore. So, you wonder what the benefits to SA are and especially since we are taking all of the risks".</p>	<p>contribute to the economy and the environmental working group are providing advice of what the appropriate way to go forward would be in terms of environmental compliance. If the benefit received from bunkering does not exceed the cost of clean-up and risk mitigation, the activity should stop operating in Algoa Bay as the impact seen in the previous sub-theme indicates the disastrous consequences to African Penguins (Refer to Table 7 and Figure 10).</p> <p>In previous years, Mr Tilayi from SAMSA mentioned that less than 30 people will be employed by the bunkering operations, but it is not certain that these will be local individuals. This does not address job creation in Algoa Bay (Nelson Mandela Bay Tourism 2019).</p> <p>Oil is made up of multiple toxic compounds. These toxins can lead to immune system hindrances, heart damage and potentially death for humans (Amazon Frontlines 2021). It is therefore not only detrimental to penguins but humans as well.</p>

As mentioned in Table 6, sub-theme 1.3, with bunkering contributing to the oceans economy, it is evident that the activity of bunkering poses threats of oil spills which have occurred in Algoa Bay previously (explained in sub-theme 4.1, see Table 13). The oil spills can have a fatal impact on penguins and this would require rehabilitation for those penguins that do survive.

The statistics of penguin and bird oiling from the spillages that have occurred in Algoa Bay in 2019 are shown in Table 7:

TABLE 7:
MORTALITY OF OILED PEGUIN STATISTICS

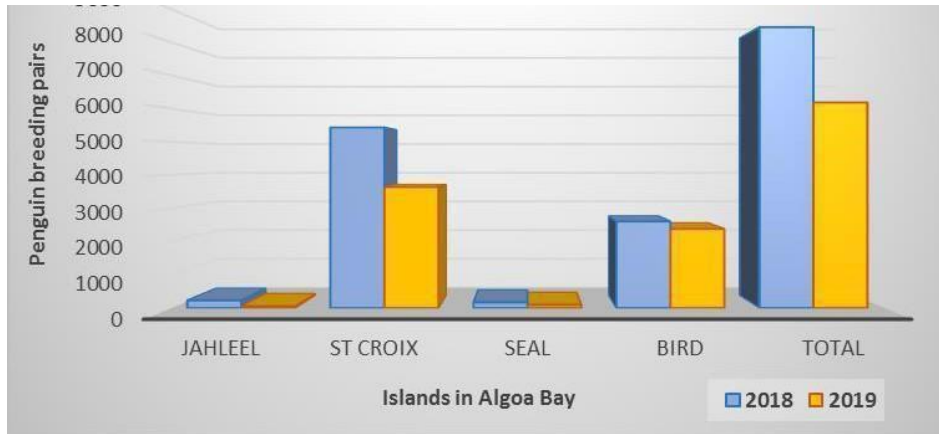
Rescued wildlife	Oiled	Mortalities
African Penguins	92	4
African Penguins (chicks) – abandoned as a result of oiled parents	17	5
African Penguin eggs	5	5
Cape Gannets	13	3
Cormorants	3	1
Total – Endangered species	130	18
Deaths – % of Endangered species		14%
Total Birds Rescued	130	18

Source: SANCCOB, 2020

The impact of the oil spill has seen 130 penguins and birds being oiled and they had to be rehabilitated and have their bodies cleaned (Nelson Mandela Bay Tourism 2019).

There has been a rapid decline of penguins from 2018 to 2019. The graph in Figure 10 below depicts the depletion of African Penguins in a span of one year due to oil spills and fish depletion as a result of maritime operations.

FIGURE 10:
RAPID DECLINE OF AFRICAN PENGUINS WITHIN A YEAR



Source: Raggy Charters 2021a

Other maritime activities that have a negative impact on the environment but were not discussed in Table 6 by participants are as follows:

Poor drainage systems

Effluent and waste play a substantial role in the pollution of the water which is harmful to marine life and society. This is predominantly caused by ineffective and poor drainage systems as well as vessels improperly and illegally disposing of their sewage. The highly polluted water has been reported to lead to health implications such as headaches, vomiting, diarrhoea, or more serious illnesses. Sewage contamination has also been known to kill thousands of fish at a time (Envirotech 2016).

Ships disposing their waste improperly

Another factor contributing to water contamination and pollution is vessels operating in Algoa Bay and not properly disposing of their waste or cleaning their vessels in the Bay and failing to follow the correct procedures.

Plastic debris in the ocean does not decompose quickly, leading to the drop of oxygen levels in the water which has a detrimental effect on marine life. Sewage causes harmful threats to fish and marine species as well as humans as it causes severe health implications and fatalities for fish species. Harmful wastes in the ocean hinders food habits and disrupts the food chain by impacting the reproduction of fish and other marine species (Mambra 2021).

The cleaning of ships is also harmful to the environment as it creates air pollution caused by the sulphur emitted by the cleaning exhaust systems. Sulphur affects the respiratory system of humans which causes difficulty in breathing (International Maritime Organisation, 2020).

The effects on the ocean and marine life as well as society clearly indicate that there is not enough environmental awareness and sensitivity by organisations towards the environment. Some of the impacts per activity are outlined in Table 8. These impacts could be reduced if organisations operating in the Algoa Bay region are more aware of the marine environment.

TABLE 8:
SHIP ACTIVITY IMPACTS

Ships activities	Aspect	Impacts
Bunkering transfer	Oil	Marine life threats by pollution, Air pollution by toxic emissions, terrestrial pollution
	Air emissions	Marine life threats by pollution, Air pollution by toxic emissions, terrestrial pollution
Ballast water exchange/release	Ballast water	Marine life threats by pollution, Ecosystem disruption
Operation of hydraulic power units	Oil	Marine life threats by pollution, harmful effect on humans
Power generation	Air emissions	Air pollution, harmful effect on people
	Energy consumption	Non-sustainable resource depletion
ER Oil sludge/bilge disposal	Oil	Marine life threats by pollution, Air pollution
	Sludge	Marine life threats by pollution, terrestrial pollution
Sewage treatment	Sewage	Marine life threats by pollution, terrestrial pollution

Ships activities	Aspect	Impacts
Grey water disposal	Grey water	Marine life threats by pollution, terrestrial pollution
Navigation	Oil	Marine life threats by pollution, Air pollution by toxic emissions, terrestrial pollution
	Air emissions	Marine life threats by pollution, Air pollution by toxic emissions, terrestrial pollution
Anchoring	Anchor	Marine life threats
Mooring	Oil	Marine life pollution
Underwater hull protection	Chemical	Marine life pollution
Garbage management	Garbage	Water pollution, marine life pollution, land pollution
Ship recycling	Hazardous materials	Marine life threats by pollution, Air pollution by toxic emissions, terrestrial pollution

Source: Table compiled from data given by a participant during interview process

Even though there are substantial negative consequences and impacts of marine operations, there is a lot of economic benefit for the Algoa Bay region. Table 9 below indicates the lucrative exports of South Africa and the percentage that contributes to the country's annual exports. South Africa's top 10 exports are illustrated in the table.

TABLE 9:
EXPORTS PER ANNUM

Ranking	Material/ product exports	Rounded off percentages
1	Precious metals	23%
2	Ores, slag, ash	15%
3	Vehicles	10%
4	Mineral fuels including oil	8%

Ranking	Material/ product exports	Rounded off percentages
5	Machinery including computers	6%
6	Iron, steel	5%
7	Fruits, nuts	4%
8	Aluminium	2%
9	Electrical machinery, equipment	2%
10	Other chemical goods	2%

Source: Workman 2020

The oceans economy is extremely important for the country as a whole but in order for the organisations to operate in Algoa Bay and contribute to the oceans economy, they must adhere to the legislation and regulations in place. The next theme deals with the legislation that governs the current maritime operations and how it applies.

4.4.2. Theme 2: Organisational and marine policies and legislation

The aim of the theme is to determine which organisational policies, regulations and legislation are currently in place to assist the organisation with management decisions and aid compliance and environmentally conducive operations. Marine and environmental legislation is necessary for any operation taking place in the ocean. The legislation assists government, organisations and society as well as safeguards the environment and marine life. The legislation aims to ensure the correct behaviour of society and organisations. Although legislation does exist, it is not necessarily known to all who have access to the ocean and is therefore not always adhered to.

Many different types of legislation exist pertaining to maritime activities in South Africa (See Section 3.6). Some of them that are relevant to the maritime industries of Algoa Bay are listed in Table 10.

Sub-theme 2.2 focussed on how the legislation affects and applies to organisations in Algoa Bay. In order for organisations to operate in the Algoa Bay region or anywhere in South Africa, there must be adherence to the policies, regulations and legislation tailored to each specific activity. There is not always knowledge and understanding of

all the legislation pertaining to an organisation as not all employees are aware in this regard which proves that governance is needed to ensure that all employees, despite their role, are privy to the relevant environmental legislation. The responses from participants are listed in Table 10 and indicate the different types of legislation that exist and where there are problem areas.

TABLE 10:
THEME 2: ORGANISATIONAL AND MARINE POLICIES AND LEGISLATION

Sub-theme	Legislation	Purpose and relevance
2.1 Current legislation in South Africa pertaining to maritime activities in Algoa Bay	National Environmental Management Act 62 of 2008 (NEMA)	<p>NEMA aims to ensure environmental governance is adhered to by outlining a foundation for decision making on affairs pertaining to the environment. It also promulgates how organisations should promote cooperative governance and act without harming the environment or citizens of the country.</p> <p>Section 2 - Principles: sustainable development</p> <p>Section 4(a) - (r) - “Development must be socially, environmentally and economically sustainable; - Sustainable development requires the consideration of all relevant factors”.</p> <p>Section 23 - General Objectives of Integrated Environmental Management “Promote integration of principles set out in Section 2; Identify, predict and evaluate actual and potential environmental impacts; Ensure adequate consideration of effects of environmental activities before decisions; Ensure adequate and appropriate opportunity for public participation in decisions that effects the environment and ensure consideration of environmental attributes”.</p>

Sub-theme	Legislation	Purpose and relevance
	Environmental Impact Assessment (EIA) Regulations of 2014	The EIA aims to ensure the criteria outlined in Chapter 5 of the Act pertaining to preparation and evaluation for environmental authorisations for the operating of activities are following the environmental impact assessment, to minimise harm to the environment, and to ensure environmental preservation.
	Constitution of the Republic of South Africa, Act 108 of 1996:	Section 24: Everyone has the right: <ul style="list-style-type: none"> - To an environment that is not harmful to their health or well-being; and - To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: <ol style="list-style-type: none"> a) prevent pollution and ecological degradation; b) promote conservation; and c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.
	No. 57 of 2003: National Environmental Management: Protected Areas Act 2 (NEMPA)	NEMPA exists for the safeguarding and preservation of Marine Protected Areas and other environmentally important areas of South Africa. The Act ensures proper management of

Sub-theme	Legislation	Purpose and relevance
		<p>those areas as well as outlines who is allowed to use the area and to what extent.</p> <p>The Act applies to organisations that operate in the Algoa Bay area and ensure that they do not fish in the Marine Protected areas or conduct activities in the area that could disturb or harm marine and terrestrial animals in the process. If there is any non-compliance to this Act, the punishments and atonements are outlined (RSA 2003)</p>
	<p>No. 59 of 2008: National Environmental Management: Waste Act, 2008 (NEMWA)</p>	<p>NEMWA ensures that waste management is properly run to protect the health and safety of the environment by instilling measures to mitigate pollution and environmental decimation.</p> <p>The Act pertains to organisations that have sewage, chemical waste or plastic waste on board their vessels and outlines the correct protocols to be adhered to in order to properly dispose of their waste to protect the environment and marine resources.</p>
	<p>No. 10 of 2004: National Environmental Management: Biodiversity Act, 2004 (NEMBA)</p>	<p>NEMBA aims to put in place a system of regulations and standards to conserve and protect South Africa's biological resources and ensuring sustainable use.</p> <p>Chapter 5 of National Environmental Management Biodiversity Act relates to control of alien invasive species that enter from fishing or other vessels of different regions and the management of species</p>

Sub-theme	Legislation	Purpose and relevance
		that are to be listed as invasive after meeting the specific criteria. Chapter 5 of NEMBA also pertains to genetically modified organisms such as fish in aquaculture.
	No. 18 of 1998 Marine Living Resources Act (MLRA)	<p>The MLRA's main focus is to ensure South Africa's marine ecosystem is protected and to avoid the misuse and abuse of marine living resources as well as avoid exploitation. The MLRA also puts rules in place for the sustainable use of certain marine living resources.</p> <p>The Act deals predominantly with fishing and contains a comprehensive list of fishing activities.</p>
	National Environmental Management Integrated Coastal Management Act 24 of 2008 (NEMICMA)	NEMICMA's goal is to act within National Environmental Management Act to create a system that ensures the integrated management of the coastal zone is in line with governance principles for all spheres of government to safeguard the coastal zone.
	Dumping at Sea Control Act No. 73 of 1980	The dumping at sea Act relates to the dumping of any substance by any vessel, aircraft or person and outlines the provisions of special permits. The Act clearly sets out what constitutes dumping and what the punishments pertaining to each criminal offense is. This Act is relevant to all industries using the ocean as their primary location to conduct business activities and includes fisheries, bunkering, tourism as well as imports and exports.

Sub-theme	Legislation	Purpose and relevance
	<p>Marine Pollution (prevention of pollution from ships) Act 1986</p>	<p>The Act aims to protect the marine environment by decreasing and mitigating the risk of international sea pollution as a result of oil spills aswell as other chemicals due to non-compliance or by accident.</p> <p>This Act particularly governs international vessels coming into South African shores and outlines the rules and regulations that they should adhere to particularly industries such as bunkering (whereby there is a high risk of ocean pollution due to the operations of the organisation either accidentally or deliberately) and imports whereby many foreign vessels enter the South African ports.</p>
	<p>The Threatened or Protected Species (TOPS) Regulations</p>	<p>The TOPS Act puts in place rules for the registration of individuals and businesses and ensures certain restricted activities are regulated e.g. hunting, recreational fishing and commercial fisheries.</p> <p>TOPS ACT PERMITS:</p> <ul style="list-style-type: none"> • Ordinary permit – Pertaining to particular restricted activities • Possession permit – To allow species being kept after they are caught or hunted • Standing permit - Similar to an exemption permit, allows a restricted activity to continue for a valid period

Sub-theme	Legislation	Purpose and relevance
		<ul style="list-style-type: none"> • Personal effects permit – Authorises the act of buying, and transporting • Integrated permit – To control the environmental impact of an activity.
	<p>International Agreement- Merchant Shipping Bill 2020</p>	<p>The Merchant Shipping Bill implemented by the South African government in 2020 with the goal of ensuring the maritime industry of South Africa lines up with international markets to stimulate expansion while fulfilling the international commitments of a country as a member of multiple multilateral and bilateral agreements as well as duly acquired conventions (Smuts 2021).</p> <p>The Merchant Bill aims to:</p> <ul style="list-style-type: none"> ○ Acknowledge and integrate international agreements that South Africa is obligated to in terms of the constitutional provisions and establish its integration into law.
	<p>The Companies Acts 71 of 2008 and the Labour Relations Act 66 of 1995 also need to be consulted by organisations when operating as it is also necessary for them to ensure that they are not in contravention of any of the company laws or exploiting any of their employees.</p>	
<p>2.2 Organisational-specific legislation and how it</p>	<p>Bunkering (Legislation)</p> <p>A participant who is a penguin conservationist said: “It doesn’t deal with that bit, and the</p>	<p>Bunkering in Algoa Bay is a relatively new operation which commenced in 2016. The</p>

Sub-theme	Legislation	Purpose and relevance
affects operations in Algoa Bay	<p>department that needs to deal with it is the department of Transport, because bunkering falls in the port, it falls in the Coega port, so it is not dealt with on the Ocean law, it is dealt with under the Port law. And in the port if you want to do bunkering in the port, then there are regulations, but if you do bunkering in the anchorage area, which is where the bunkering is situated, then the legislation does not apply. So, it is one of those areas where there is legislation in place for similar activities in different locations, but not specifically for that activity in that location. And therefore, they are operating legally it seems.”</p>	<p>response from the participant who is actively involved in speaking up about ship to ship bunkering in Algoa Bay indicates that legislation pertaining to bunkering itself in a particular region does not exist but there is legislation in place for similar activities which clearly indicates that this provides room for non-compliance and abuse of an environmental region as there can be misunderstanding and misinterpretation of legislation.</p> <p>NEMA legislation and EIA, environmental impact assessments deal with the storage of dangerous goods which consist of heavy fuel oil that is used in bunkering, but that legislation relates to storage on land. If a vessel is 100 metres into the sea it does not pertain to that activity and if the vessel is one or two kilometres into the sea, which bunkering is, then it does not fall under that piece of legislation. Other legislation is very non-descriptive and does not require an EIA or public participation meeting.</p> <p>The following comprises the legislation governing bunkering:</p> <ul style="list-style-type: none"> • National Environmental Management: Integrated Coastal Management Act, 2008 (ICM), • National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004),

Sub-theme	Legislation	Purpose and relevance
		<ul style="list-style-type: none"> • Marine Pollution (Control and Civil Liability) Act No 6 of 1981, • Prevention of Pollution from Ships, Marine Pollution Act No 2 of 1986, • MARPOL, International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects to controlling pollution from ships, • SOPEP - Ship oil pollution emergency plan and as per the MARPOL 73/78 requirement under Annex I, and • ISGOTT Manual
	<p>Squid industry</p> <p>Participant 1: “Well the squid permits I guess for this last round, we applied in 2013 and then it was given in 2014 and it was valid for 7 years. The next round we apply this year now and hopefully it will be a longer term; because the shorter-term period obviously affects us when it comes to investments. The vessels are not cheap, they are very capital intensive, so to get our return it all depends on the fishing. So, 7 years is a sort of touch and go. If they give us 15 years it just makes it more conducive to invest in an industry and</p>	<p>The response from participant 1 indicates that legislation and protocols become problematic for operations and there is a need for the company to fish ample squid for investment purposes which could be an incentive for overfishing. The limitation of use of the permits issued could also pose a problem to operations as it is time consuming and costly to reapply after such short intervals.</p> <p>Some of the legislation that applies to the squid industry:</p> <ul style="list-style-type: none"> • Marine Pollution (Control and Civil Liability) Act No 6 of 1981,

Sub-theme	Legislation	Purpose and relevance
	<p>spend more money on building your vessels.”</p>	<ul style="list-style-type: none"> • Prevention of Pollution from Ships, Marine Pollution Act No 2 of 1986, • MARPOL, International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects to controlling pollution from ships. • National Environmental Management Act 62 of 2008
	<p>Coega Area</p> <p>Participant 19: “Ja, so when Coega was established, one of the conditions at the time, it was called the Record of Decision, which is your environmental authorisation issued by the National Dept of Environmental Affairs, and one of the conditions of that permit was that we establish an EMC, an Environmental Monitoring Committee. And SanParks is one of the key members of that Committee. We meet four times a year and we have established great relationships with them, because in the end it is all a common goal when it comes to environmental management, we all want to make sure that we limit our impact on the</p>	<p>Participant 19 mentioned that there is adherence to legislation and a very cognisant approach to ensuring there is follow through with the regulations outlined in the Acts.</p>

Sub-theme	Legislation	Purpose and relevance
	<p>environment – be it land that we own of land adjacent to us. We have that duty of care, as set out in NEMA. So, you know we have to have a good relationship with our neighbours and with the respective interested parties, and even more so now with the gazetting of the Marine Protected Area. So, it is our duty of care to ensure that we play that role and maintain those relationships.”</p> <p>Participant 20: “So I just wanted to make that distinction. And there is a ... I don't want to say there is a different set of legislation for the port but they do operate under the Ports Act and that is not something that CDC operates under. So, when it comes to marine legislation we have obviously got NEMICMA, which is your National Environmental Management Integrated Coastal Management Act, and then the new Marine Protected Area legislation under Protected Areas Act, and we have got MARPOL. So, there is obviously the bunkering that is</p>	<p>The response from participant 20 indicates that a comprehensive list of legislation exists. There was also a conflicting response to the participant from Enviro-Quest. It is clear that participant 20 was referring to general Acts of legislation and did not want to acknowledge that bunkering-specific legislation did not exist.</p>

Sub-theme	Legislation	Purpose and relevance
	<p>taking place within the Algoa Bay and there is an involvement that CDC has there. So whatever environmental and marine legislation is applicable, we have to comply with, and it would be listed in and we do get audited and it is something we have to comply with.”</p> <p>Participant 20 also said: “Well there will be quite a lot. I know that... let me just have a look quickly. I know that there is a lot of legislation on the maritime side. So, what I can say is that obviously Section 28 of NEMA Duty of Care is your primary piece of legislation that all of us are bound by. When it comes to the EIA regulations then that is not applicable on the maritime side. So, bunkering does not require environmental authorisations from the respective departments. MARPOL, which is your marine legislation, is applicable to them and I think potentially the Ports Act.’</p> <p>Participant 20 further said: ‘But there is a series of legislation. I will tell you what now, let me just go into it. Okay, so first</p>	

Sub-theme	Legislation	Purpose and relevance
	<p>of all the Constitution of our country, then the Marine Pollution Control and Civil Liability Act of 1981, the Marine Prevention of Pollution from Ships Act of '86, the Marine Pollution Control and Civil Liability Act '81 which is the same Act but different regulations, the Marine Pollution Intervention Act of '87, the SAMSA Act or the Act that establishes SAMSA and its regulations 1988, the Wreck and Salvage Act of '96. I can carry on I don't know but there's 30 or 40 pieces of legislation that govern or must be considered by the bunkering companies. So, it is quite an extensive list and there are some international conventions as well, which they are bound by."</p>	
	<p>Legislation</p> <p>A participant from Sustainable Sea Trust said:</p> <p>"No, I think you always going to need changes, but I also teach my students that changing legislation is not the answer; for every Act that SA produces it costs in the region of R1 billion rand."</p>	<p>This indicates how expensive new legislation is to pass and is a contributing factor regarding the delay in new legislation being passed to govern need activities in certain areas and regions.</p>

Sub-theme	Legislation	Purpose and relevance
	<p>Marpol Convention - In organisations</p> <p>Participant 10: “That’s a good question. So, in SA we have very strict laws but also under Marpol, the international law of the sea and the Marpol convention, that helps govern ships in the high seas: they are not allowed to discharge sewage to the bilge, bilge water, as ballast water.”</p> <p>Participant 11: “So we have various different types of legislation: we have the NEMBA Act, we have the Marine Living Resources Act, we have Aquaculture Acts, Waste Water Treatment Acts, we have got the Pollution Acts. You can basically find ... we have working for water. We have CITES, we comply with lots and lots of international legislation, we have ratified many, the convention for biological diversity for example”</p>	<p>Participant 10 touched on the Marpol convention which forbids vessels from discarding their waste into the ocean.</p> <p>Participant 11 mentioned that there is also a lot of local and international legislation which is very strict regarding waste.</p>
	<p>View of a participant with law enforcement experience</p>	<p>The response from the compliance officer explains what legislation exists and how it is put into practise. The compliance officer implements the legislation and regulations within what the law</p>

Sub-theme	Legislation	Purpose and relevance
	<p>A participant with experience in law enforcement said: “Okay, SA’s Marine Resources as you know for yourself is managed on a national level. So, the provinces don’t have any say in terms of the management, the issuing of fishing rights, quotas etc. So that act that governs all the fishery matters is the Marine Living Resources Act, Act 18 of 1998. That is the main focus in terms of illegal, unreported, unlawful fishing activities. So that is basically what I as an authorised fishing control officer do on a day to day basis. That act forms the legal framework in which I do my work. Obviously, SA has set a specific management style where it manages 22 of the commercial fisheries. It means each sector has its own desk of dedicated scientists and a manager and supportive staff etc, etc. So, everything is specific driven management and obviously the permit conditions, the fishing permit conditions is drawn up by that specific sector. There is a lot of cross-cutting happening in the industry, where for argument’s sake you have like the tuna sector which also catches snoek, and tuna we also have the traditional line fish section - it is just an</p>	<p>allows. It has been mentioned that due to a lot of red tape and rules, it is occasionally difficult for agents to implement the legislation. There have been many obstacles and changes which make it difficult for the agents to act accordingly.</p>

Sub-theme	Legislation	Purpose and relevance
	<p>example – that also catches snoek and tuna. So, there is some cross cutting but it's sector specific management, okay? So that is the main legislation that I deal with. We are special control officers, I am also appointed at that section of the national environmental management act, and the use of vehicles in the coastal zone. To do the broader based application of the NEMA act you need to be an appointed EMI, environmental management inspector, so we are not appointed as EMIs. In 2010 we were transferred from the Dept of Environmental Affairs to the Dept of Agriculture, Forestry and Fisheries, which was a big setback. I don't know, it was a decision, a presidential decree made by President Zuma at the time but it was a tremendous setback. Now 1 April 2021 we are back with the Dept of Environmental Affairs, it is called now Forestry and Fisheries and the Environment, under the ministry of Barbara Creasy. So there is a lot of expectations for us to be appointed as EMI to do all the facets of the National Environmental Management Act. The biodiversity sector which deals with NAMCA and SAMTA fishing activities,</p>	

Sub-theme	Legislation	Purpose and relevance
	the whale watch, shark nets type thing, filming in marine protected areas for which permits are issued, and hopefully we will also be appointed under the Marine Protected Areas Act, because that section 43 was repealed out of this marine resource act because we are not appointed EMIs”	

Despite the clarity and comprehensiveness of the legislation, the effectiveness is often debateable as there are individuals who see the Acts as restrictive, unfair and difficult to adhere to. The following sections describe the complexities of applying the legislation in society.

4.4.2.1. National Environmental Management Act (NEMA) application

NEMA exists to ensure co-operative governance and that the rights of people are enforced whilst also recognising economic development. There are different sub-categories of NEMA which deal with amended legislation, protected areas, integrated coastal management and waste. When it comes to fisheries and over-fishing and related activities, it falls under the MRLA (Marine Living Resources Act). Therefore, as far as the development of those two pieces of legislation is concerned, the focus is on different aspects, because initially the governance was broad and fell under one umbrella. The entities that were responsible for implementing the different types of legislation were split up and therefore a situation arose where fisheries went to agriculture and forestry, and environmental affairs stayed on its own and it specifically dealt with NEMA, whereas fisheries were mandated by the MRLA (RSA 2021c).

The changes can pose as problematic and difficult to gauge which can be used as an excuse for non-compliance by organisations.

4.4.2.2. Marine Protected Area (MPA) in reality

There is immense controversy around the governance of marine protected areas. There is some conflict, especially with coastal communities that argue that some of the MPA legislation is affecting their livelihood, especially small-scale fishing communities who subsist on living resources; they feel their livelihoods are impacted by declaring MPAs in the environmental legislation of the MLRA. They feel that not enough consultation takes place when an MPA is declared which causes a lot of debate around MPAs and just the decision making relating to them. The MLRA does deal with MPAs, but there are some aspects relating to MPAs that will be found in the NEMA Act. The Biodiversity Act also contains some aspects of MPA governance.

The Acts are not favoured by everyone and this makes it difficult for individuals and organisations to comply to.

4.4.2.3. *Marine Living Resources Act (MLRA) in reality*

One of the principal purposes of the MLRA Act is to establish that society has fair access to the ocean and that the current available marine resources are used in a sustainable and conducive way. The Sea Fisheries Act precedes the MRLA, which centralised on ensuring that resources are sustainably used and protected. This Act was disputed claiming that there was an unfair distribution of resources which allowed a specific group to have predominant access over others who were excluded. With the introduction of the MRLA, the core aim was to make sure that everyone had equitable access to the marine resources.

Organisations have been said to abuse the MLRA by engaging in overfishing and by-catch. Increasing access to the ocean poses a risk of abuse of marine resources as well as having untrained and unskilled individuals harvesting species from the ocean and in turn doing a lot of damage in the process due to a lack of expertise.

The legislation in place can only be adhered to by those in charge of making decisions and those with an influence over an organisation.

The next theme deals with stakeholders of organisations operating in the Algoa Bay area and the affect they have on decision making and environmental responsibility.

4.4.3. Theme 3: Stakeholders of organisations in Algoa Bay that conduct businesses forming part of the ocean economy

The purpose of this theme is to identify the organisations, individuals or communities who are the biggest role players and their functions. These aforementioned role players will impact the decisions made by an organisation particularly the decision of whether compliance is the most lucrative option for their operations or not.

Customers, investors, shareholders, government, owners and management have been identified as significant stakeholder organisations in the Algoa Bay region. Table 11 identifies the stakeholders of organisations in Algoa Bay that play a role in the oceans economy.

TABLE 11:
THEME 3: STAKEHOLDERS OF ORGANISATIONS IN ALGOA BAY THAT CONDUCT BUSINESSES
THAT ARE PART OF THE OCEAN ECONOMY

Stakeholder	Participant's response	Interpretation findings and comments
Customers	Participant 17: "Well, everything comes back to monetary value, for example when you tell someone it is dolphin friendly tuna, the person is more likely to choose the dolphin friendly over the non-dolphin friendly tuna, so that is indirectly a monetary incentive."	<p>Consumers are acknowledged as a critical component of an organisation responsible for sales. They directly and indirectly influence the company's profit margin. If an organisation does not comply with legislation and their non-compliance is made public knowledge, they risk reputational damage which could decrease their customer base. In the same way, positive publicity and 'going green' could also make their products and services more appealing to customers.</p> <p>The response from participant 17 indicates consumers being attracted to environmentally friendly products and how it can potentially ensure that customers choose this product over products that are not environmentally friendly.</p>
Management	A participant part of one of the country's National Parks: "Ja, that is quite difficult. I don't know,	Management is tasked with planning, directing and controlling. Their roles are critical for the running of an organisation and meeting objectives.

	<p>because it depends on the size of the company I think, but I doubt that the manager or the CEO is going to be so in touch with what the environmental officer is necessarily doing, or if he is, if he actually has a ... I don't know, more of an idea of if the environmental officer is compliant, or if he puts his reliance in that environmental officer to sign off and to make sure everything is according to the books. So that again is a problem I think: you need an outsider to come in and see 'Okay, this is not right, this is not according to legislation'. I think there should be a kind of checking system."</p> <p>Participant 7: "But answering your question, there is a fiduciary duty on the directors of a company, even if it is a small one, that they should know the legislation pertaining to their industry. There is a fiduciary duty, they are obligated to know it."</p>	<p>Management should be hands on and involved in decision making and monitoring that environmental policies are adhered to. The response from the participant indicates that when it comes to enforcing policies and regulations, management is not directly involved in deciding whether or not rules are complied with especially when it is a large organisation. The decision-making process takes place during the operation by those involved which leaves a lot of room for unsupervised non-compliance.</p> <p>The response from participant 7 indicates the requirement for those charged with governance to be aware of legislation and to ensure it is enforced. Management is also responsible for educating the individuals working on their vessels or in their businesses about environmental legislation.</p>
Government	Participant 2: "So you have the fox in the henhouse! So you can have all the best laws, but within a single government department are competing interests	The role of government in organisations is to ensure the enactment and enforcement of laws as well as maintaining law and order. Law enforcement will be

	<p>– one to fast track growth under the guise of sustainability, create jobs that are not sustainable, to tick box quickly an aquaculture farm and have a this and have a that, which isn't sustainable, isn't environmentally conscious, it is ecologically unjust, it is also socially unjust. And at the same time, they are supposed to be protecting! So, we even look at the cooperative governance which you should look at, because each department has to arbitrate, they can't hold each other accountable.”</p> <p>Participant 18: “Ja, well basically if you think about the governance structure within SA, and you think about who is managing growth in blue economy, and who is supposed to be protecting the environment, and where they all sit – and they all sit under one department.”</p>	<p>dealt with in greater detail in the next sub-theme (sub-theme 4.2).</p> <p>Participants 2 and 18 stated that government officials act according to a monetary goal and do not consider all other factors and circumstances including environmental health in the long run. This contravenes their roles or maintaining law and order as their focus is unilaterally driven.</p>
Shareholders and investors	Participant 6: “If you have a mindset shift, if your biggest investors say ‘Sasol, we are not going to provide you with funding’ then you are going to think again ‘oh, I really need to clean up my act because if I am going to lose these financiers there will be an impact on my weighted average cost of capital.’	Shareholders of an organisation have a share or an interest in a company's profits. An investor can lend or invest money in an organisation to acquire a substantial financial return. Shareholders and investors can influence decisions made by the organisation and do hold a lot of power. Shareholder activism grants shareholders an opportunity to take responsibility and express their

	<p>And that has repercussions to capital budgeting, capital structure decisions. So legislation is important but pressure from investors, pressure from banks, if you apply for a loan as a small business and they ask you questions about your environmental policy and you haven't got one, you might not get the loan or you might have to pay an interest rate that is much higher than what you would have received had you had a policy.”</p> <p>Participant 6 also said: “Exactly. Or you are not aware you are causing damage, and even if you are aware you have got bigger fish to fry! (laughs) So it really boils down the asset managers, if we think back to that example, if we ask them why don't you attend the annual general meetings of the companies, why don't you ask questions – Sasol for example, a mega polluter in the country. So, if you represent a university which is supposed to be a forward-thinking institution and you represent numerous other clients as well, you are a significant stakeholder or shareholder in that company; why don't you attend the AGM and ask the difficult questions? Why don't you</p>	<p>disapprobation on matters such as environmental and social and governance. As mentioned in Chapters 1 and 2, the ToF is used to explain that organisations view profit as their main goal; however, shareholders can use their voice to shift the mindset to ensure their goals are in line with profit and environmental preservation.</p> <p>The participant's opinion clearly indicates the significant influence that shareholders and investors have on organisations and the responsibility that they need to take in order to voice their opinions to make a change. Organisations need capital investment for development and growth and happy shareholders to approve new policies or they risk having investments pulled and policies rejected. Organisations that are continuing to ignore the principles of good corporate governance risk suffering a shrinkage and reputational damage. Management must be dynamic with shareholder activists' appeals.</p>
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	<p>engage behind closed doors if you don't want to vote against certain resolutions at the annual general meeting? Time! And Time is money! Some of the asset managers are creating their own inhouse teams with lots of young people who are passionate about the environment and ESG considerations. So, some of the smaller investment managers are really building a niche for themselves, saying that we vote, we engage, we ask the difficult questions, we raise issues in the public and social media – trying to pressurise companies into cleaning their act. So, for me the role that the capital providers play is almost as important as the legislation.”</p>	
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As mentioned in Table 11, managers play an essential role in all organisations and specifically those operating in Algoa Bay. Managers that play a significant role in organisations that have vessels operating in Algoa Bay are discussed in the next paragraphs.

Ship managers

The ship managers are tasked with employing the crew to work on the vessel and ensure operations run smoothly. They are required to have the necessary knowledge and skills.

Ship managers are responsible for the majority of the operational activities of the organisation which allows the owner to venture into other business avenues and look into business expansion. Ship managers ensure repairs and maintenance are conducted and they are in charge of audit planning, observing that there is compliance to legislation, management of overseeing finances, and supervising the crew to ensure they are operating efficiently and the business activity is going well (Maritime Knowledge Centre 2020).

There are many types of management (Maritime Knowledge Centre 2020):

Shipping operations management

This includes taking care of the day-to-day business operations to ensure all policies and procedures are adhered to.

Technical management

Technical management monitors and maintains the condition of the vessel and need to ensure that the vessel is in a proper working condition.

Ship maintenance and management systems

This includes supervision of staff, ensuring safety protocols are adhered to and maintenance. The tasks of this type of management ensure that labour laws are adhered to.

Logistics management

Logistics oversees the movement and transportation of goods from one place to another. There could be a lot of non-compliance occurring during the transportation of goods which must be monitored.

Database administration and management

This type of management ensures an updated database environment.

Port management

Port management ensures adequate supervision of operations at ports to avoid non-compliance to laws and regulations.

Owners

Owners of an organisation play more of a strategic role and are not engaged in the operations or management unless the organisation is a smaller enterprise whereby the owner can be hands on. Owners of larger organisations focus predominantly on the big picture by defining the vision of the company. They acquire the necessary expertise and control to make decisions.

Environmental management systems by owners and managers

Owners and environmental managers are tasked with enforcing the environmental management system as well as monitoring necessary strategies for further growth. An environmental management system is a set of policies and practices in place to minimise the environmental footprint of an organisation. International Standards Organisation (ISO) 14001 is the international standard that established requirements for a conducive environmental management system (Environmental Protection Agency 2021).

Shareholders of an organisation are just as important in influencing the decision making of organisations and implementing change as managers. Table 12 indicates the ways in which shareholders can voice their opinions in order to promote change and environmental awareness.

TABLE 12:
SHAREHOLDER ACTIVISM

Industry	Shareholder voicing of opinion protocols
Private (informal)	Writing letters to management
	Negotiating with management
	Getting rid of shares by selling them to another party – this is called divesting
Public (formal)	Filing shareholder resolutions
	Raising matters and questions at annual general meetings (AGMs)
	Voting against management or motions they disagree with.
	Take to social media and conferences about contentious matters to raise awareness
	Getting the media involved

Source: Viviers 2016

The role players in an organisation play a substantial role in compliance or the lack thereof. The next theme deals with incidents of non-compliance to marine legislation by organisations in the Algoa Bay area and how law enforcement plays a part in allowing this non-compliance to take place.

4.4.4. Theme 4: Compliance to policies, laws and regulations

The aim of this theme is to assess the degree of compliance vs non-compliance and the consequences of non-compliance in order to determine which is more lucrative to management of organisations as per the ToF. When organisations do not comply to marine and environmental legislation, this has a harmful effect on marine life and society. Many incidents of non-compliance are reported that have been denied by organisations who claim to be adhering to all rules and regulations. The following theme evaluates the incidents reported as well as the risks faced by organisations due to non-compliance.

The responses from the participants clearly indicate that there is a lot of non-compliance occurring in Algoa Bay.

The risks posed by organisations due to non-compliance with marine legislation include jail time, penalties and having operating licences revoked (which is discussed in sub-theme 4.2); however, the cost of compliance could be costlier than non-compliance punishments and therefore poses a risk of a loss.

Participant 20 said, 'Very few people are going to want to comply out of their own accord because it costs money as well. And then you get those that don't ... that might comply in the first two or three years but then in the end no one is checking up and the money gets directed elsewhere'

The remark from the participant indicates a motive for non-compliance and why there are potentially so many incidents reported in Algoa Bay.

There have been numerous incidents reported in the Algoa Bay area that directly confirm that non-compliance to marine and environmental legislation is occurring.

Non-compliance results from poor corporate governance whereby management and owners are not as actively involved as they should be in ensuring that staff and labourers are adhering to company policies and relevant legislation. Non-compliance could also result from staff not being educated regarding legislation or are given orders to disregard them in order to maximise profitability.

Table 13 outlines the incidents of non-compliance by organisations reported in Algoa Bay – these incidents were in contravention of marine and environmental legislation.

Sub-theme 4.2 deals with what the current punishments are and whether they are a deterrence for non-compliance. Law enforcement is also dissected and how they play a key role in organisation's behaviour is explained. From the data extracted from the previous themes, it is clear that law enforcement is lacking. Many participants confirmed that law enforcement and lack of deterring punishments are contributing factors to non-compliance in Algoa Bay which is also discussed in Table 13.

TABLE 13:
COMPLIANCE TO POLICIES, LAWS AND REGULATIONS

Sub-theme	Participant's response	Interpretation findings and comments
4.1 Incidents of non-compliance to marine and environmental legislation	<p>Bunkering (Incidents of non-compliance)</p> <p>A participant from one of the country's National Parks said: "There were two oil spills. I mean one was within six months of the operation starting in 2016. Remember we only found out about bunkering after the ship had already anchored; there was no risk assessment, no environmental, no EIA – and because of that very loophole that you mentioned it never happened in SA, we have no legislation governing it except the international law of the sea, and from there the Marpol protocols apply. And so, there is a lot of leeway. I mean it is a most confounding thing because SAMSA is a regulator and they are also the permit issuer. So how can you give the permit and then you are obviously getting compensation as a result, but then you are also the regulator? It doesn't make sense! And it was a bit messy and yes, it was a bit political, and I am not sure if you saw the articles that came out but there was also corruption around that."</p> <p>A participant who is a penguin conservationist said:</p>	<p>Ship-to-ship bunkering is the operation of fuel being transferred from one ship to another ship and has been given approval by SAMSA in Algoa Bay. Bunkering is a new activity in Algoa Bay, as previously mentioned, and was said to have come as a shock to the Port Elizabeth community in 2016.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>“Whereas bunkering was totally not anything like that, there was no public information about it and even after we requested information, it was not very transparent, even when we had meetings with the companies, SAMSA and all, they seemed to be very aloof and not forthcoming with information, like you ‘don’t need to know we have done anything, this is all fair’ and things like that. So, they feel there is this one Act that possibly they didn’t follow because they were not transparent in it, but it is very fair and not direct like an EIA. So what the next step would be would be to actually ask for the bunkering in the ocean to be legislated from the government, from Barbara Creasy, and say ‘this is unacceptable, it doesn’t fall within any of the environmental acts, and that they could have set it up without any EIA and that it must be listed as an activity’. But you cannot now tell them to do an EIA and not approve of them because they are already there.’</p> <p>A participant from one of the country’s National Parks: “So we have already had two Tier 1’s and one Tier 2. Just from ship-to-ship bunkering. And that again, you talk about non-compliance, the one that was tier 2</p>	<p>The statements made by the three participants clearly indicate that the correct procedures and protocols were not followed, and it took the public by surprise. The public did not even have a say in the matter before this activity was approved in Algoa Bay. There has been no proof regarding evaluation or</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>happened because the deck hand cleaning the ship didn't follow protocol and just swept the stuff off. And secondly, they misreported – well they didn't report it – we had to chase them to say 'it's actually that ship' by satellite and so on. So, they had a problem, they didn't report it and only when they started seeing the first oiled birds, did SAMSA and others react. Only after the park received”</p> <p>Killing of marine life</p> <p>Participant 1: “You know squidding on our vessels, all our squidding is scored by hand,</p>	<p>identification of the environmental threat bunkering could pose (such as an Environmental Impact Assessment). Furthermore, the oil spills are in direct contravention of the NEMA Act, the MLRA Act and the Marine Pollution (Prevention of Pollution from Ships), 1986. The oil spills were also not reported which is also in contravention of the current legislation. The NEMA Act, section 30, states that oil spills must be reported within 14 days to the relevant law enforcement agencies by the person responsible, or by his or her employer. These oil spills are the cause of many deaths and health implications of the African Penguin as explained in theme 1. Multiple legal requirements govern the act of receiving and transferring fuel from vessel to vessel. The equipment on each vessel needed to prevent the oil spilled at sea is outlined in MARPOL, Marine Notice 3, CMA, Section 52, Prevention of Sea Pollution. However, during the spill reported in 2019, the vessel did not have the necessary spill control equipment.</p> <p>When there are oil spills, SANParks is tasked with looking for penguins covered in oil to rehabilitate them, which is costly. There has been no evidence of organisations in the bunkering industry donating funds to assist in the clean-up and rehabilitation.</p> <p>The response from participant 1 indicates that there is compliance to regulations and by-catch is avoided; however, the participant did not mention the unlawful</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>we have fishermen on the vessel depending on the size of the vessel, and then they will all be equipped or have jigs and they use those jigs to catch the squid. So, it is all handline caught squid, it is not like you are trawling of squid that happens around the rest of the world. So that is what also makes it a better quality because your skin is kept intact. And also, we don't catch the small squid, so it is not like a trawling net that catches everything. So those types of things as well, managing in terms of getting the breeding stock to escape as well. But it is all caught by hand, so they will catch the squid, you will have like 20 fishermen on a vessel, and then they will catch it into the individual portion of the vessel where they sit, in their section, and then they will catch it and we will feed it on the vessel as well, it is all sea-frozen product.”</p> <p>A participant who is an environmental conservationist said: “And then they catch the squid and pull them up and they get paid by weight for what they catch. But what happens is then often seals will then start taking</p>	<p>shooting of seals which is in direct contravention to the NEMBA Act. It has been alleged that the squid industry is directly responsible for the killing of seals. Many seals, dolphins and sharks have been reported to have washed up on shore with bullet wounds. The dolphins and seals are seen as competition for the fisheries which makes them a threat; however, there are other ways of driving away dolphins and seals. There are electronic methods such as sonar to deter dolphins and seals from encroaching on a particular area that should be used instead.</p> <p>Beheaded penguins have also been found washed up on the shore at Kenton on Sea and there have been no suspects regarding this report as it is difficult to track the vessels or individuals responsible (Grobler 2020). This clearly shows that there is much unlawful killing of marine life taking place which violates the current legislation in place. This once again reiterates the multiple illegal activities taking place and the lack of proper law enforcement.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>the squid from their line and eating those. So, the fishermen can become quite frustrated and then they may call for the skipper of the boat to come out and skipper – some boats obviously, not all of them – and they will shoot the seals which is completely illegal.'</p> <p>Participant 3: "direct mortality, like shooting of seals. It is not just seals, in the past we have had dolphins also shot, probably from other fishing vessels."</p> <p>Participant 7: "So I think it is quite a complicated landscape. So, we do have transgressions of environmental laws like the shark finning that is along the coast, in terms of competing with things like seals or whatever where they do things which they aren't allowed to shoot or do it – they don't have licenses for it. And into being involved in things that many of the fishery sectors are involved in things as over fishing, illegal quotas taken and including being part of human trafficking and drug cartels."</p> <p>Participant 14: "That is shocking. So really enforcement of the law is non-existent. So, we have good laws but no enforcement and no inspectors to</p>	

Sub-theme	Participant's response	Interpretation findings and comments
	<p>go on board and inspect. That doesn't happen. And even for penguins, if they catch penguins they need to record it because penguin is a protected species, but sometimes they catch penguins in the net and then they just cut off the head and throw it in the sea."</p>	
	<p>Labour laws Participant 11: "But ja, in terms of I think your manufacturing companies and that, unless there is internal corruption that is not being put forward, I don't think any of them are non-compliant in what they do. Ja, and it is also hard in terms of who is policing it. You know a lot of it is the implementation process and the policing process, so it depends on what sector you are looking at: So, fisheries compliance, there might be transgressions there."</p>	<p>Participant 11 was eluding to the labour law concerns within the fisheries sector. Within the squid industry there have also been multiple labour law transgressions regarding how their workers are paid. There have been reports on exploitation of fishermen of South Africa's shore and reports in the past of forced labour which have been described as out of hand and unchecked. The lack of governance and oversight in addition to the colossal worth of the fishing industry are contributing factors to worker abuse (Makoni 2020).</p>
	<p>Sewage</p>	<p>One of the biggest contributors to pollution is sewage. Effluent discharged into the oceans causes water contamination which has detrimental effects for both society, industries, tourism and marine life.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>Participant 2: "I am going to say it – the disasters that are the waste water treatmentworks run by the municipalities of thiscountry – give me one example wherethere is one compliant waste water treatment works. And compliance requires you have got to maintain yourequipment, and a lot of money is not put towards maintenance, it is put towards operations or salaries or it is taken off somewhere else. Sounfortunately, in the end the environment suffers, and you get left with the discharge of effluent, be it into the marine environment, be it into an estuary, be it into a river, the discharge of this non-compliant effluent from these wastewaterr treatment works into our environment. And that comes at a massive cost. So,I think those are just some examples of why it costs money. But the benefitsare obvious. Most of your storm waterdrains go to the bay, you find that typically with chemical companies, plastic pellets – so pelletising."</p> <p>Participant 5: "We onboard the vessel have a robust, four level sewage conversion</p>	<p>Participant 2 stated that the government is the primary culprit to blame for improper wastewater treatment facilities and poor drainage systems and this is largely due to a lack of funds or perhaps a misappropriation of funds.</p> <p>Participant 5 indicated that there was no unlawful dumping on sewage waste into the ocean as there is a sophisticated system involved. Even though this</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>system which basically takes your sewage, aerates it, breaks it down with bacteria, goes through a filtration system, goes through a chlorination system, and that can be pumped overboard, under international legislation. But we try to actually land it ashore for proper processing when we can."</p>	<p>might be the case for participant 5's organisation, there have been reports in South Africa where waste has been unlawfully dumped in the ocean. In 2018, a captain of a vessel was charged with this offence and the organisation was fined with R1,7 million for being in contravention of the MARPOL Act (Frankson 2018).</p>
	<p>Oil spills</p> <p>Participant 5: "But there will be unscrupulous companies. I was on the ocean salvage tugs, John Ross and Wolraad Woltemade, and on numerous occasions we saw massive oil spills out at sea, where oil tankers had been cleaning their tanks and just dumping it in the ocean. Companies who will just throw rubbish over the side."</p> <p>Participant 6: "Well we have to fuel them in port. So, there are bowsers in port, one or two companies that are close to the diesel tanks here. So, we will come in there and normally after we off load the squid the skippers/captains will take the vessel and we will refuel there. So, it is straight from the bowsers into the</p>	<p>Oil spills are an increasing problem around the world and have many fatal consequences for marine life but can also have a direct negative impact on the oceans economy.</p> <p>The response from participant 5 is one of the seven types of evidence against unlawful crimes being personal experience as participant 5 is an eyewitness. This experience can explain and support the claim that non-compliance to environmental legislation exists.</p> <p>Participant 6 seems to contradict participant 5's experience, however, and thus not all organisations can be accused of being non-compliant. There are some organisations with sound environmental management systems in place that value the protection of the ocean and marine life.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>vessels, so in terms of spillage there is no risk of spillage. It is all in harbour, nothing at sea. You know one of these vessels you maybe see that is outside the harbour, these international vessels that come and take fuel, the risk there of fuel pollution is much higher than I am aware of, doing it in the harbour.”</p>	
	<p>Poaching</p> <p>A participant who is a compliance officer said: “So we play by the rules, they don't have to, every ten times we go out we catch them once. So, we do catch them eventually. But they go to auction and buy it. Now he has a permit for 100 abalone. 25 of those he takes out because they are not good quality or whatever, and he takes 25 poached abalone and puts it in. Or if he is clever and fast enough, he moves that 100 and on the same day he gets another 100 but he is driving... and 'oh no, but here is my permit for 100. I am allowed 100”.</p> <p>Participant 13: “So in terms of non-compliance I don't think there is.. well there might be blatant non-compliance, but I am not</p>	<p>Abalone poaching is a pressing problem in South Africa and it also occurs in Algoa Bay. This problem has been associated with drug smuggling such as crystal methamphetamine. Over the span of a few decades, organisations have hired poachers to obtain approximately 45,000 tons of abalone. Covid-19 has escalated the problem as desperate and poor communities are mainly involved in this act (Roper 2020).</p> <p>Abalone and west rock lobster account for the majority of marine living resources that are smuggled. West Coast rock lobster is found on the SASSI red list as endangered and facing extinction. The species has decreased to 1.9% of the original population and there are not severe enough punishments or penalties for this illegal activity to deter this type of poaching in order to save the west rock lobster (RSA 2021d).</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>aware of any that I could report on. But what you will find is loopholes in the legislation, that companies will find. Or they will do the bear minimum. So, for example using the Disaster Management Act, under COVID, as a reason to fast track development and building without undertaking a full EIA process under the Operation Phakisa Mandate – as an example. So it is not necessarily that they are not complying, it just means they are using different bits of legislation against each other to get out of doing a full EIA that can take a long time – and therefore they are not including all relevant stakeholders, and they are I think also just doing the mere tick box exercises that the law requires them to do, but they are not moving forward from there.”</p>	<p>Loopholes in legislation are also often used to avoid punishment and to appear as compliant to avoid persecution and public scrutiny.</p>
	<p>Overfishing and illegal fishing</p> <p>Participant 5: “Hm. Ja, I mean there is a lot of issue, I mean you have trawlers, your deep-sea trawlers where they essentially have the net mechanism that is attached to the vessel at the back and basically scrapes the bottom as they move along and just takes up</p>	<p>Illegal trawlers, like Chinese trawlers, are often reported in the local economic zone and are much further offshore but are still are affecting the marine life populations and species due to overfishing and by-catch, which in turn is affecting the populations that are closer in shore. Trawlers catch all species in their way and scrape the bottom of the ocean floor which also damages the plant life and ecosystems</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>whatever is taken up. And so, you are catching all kind of things and a lot of the time quite a significant portion of your catch is not even your target species.”</p> <p>Participant 8: “Ja, that depends on which part of the year. We find that the summer fishery the size is not too bad, it goes smaller in winter. But we have also got a curve: you know what we have done as the industry in conjunction with the Department, we have also brought in closed seasons. So, there are certain times of the year that we don't fish, and that allows the squid also to spawn and the biomass to grow. So, we have sort of put that in place to prevent over-fishing as well.”</p> <p>Participant 19: “They drown. They drown and die. There is quite a bit of footage about it. Sharks' fins are everything, that is their mobility, without it they can't swim.”</p> <p>A participant who is a penguin conservationist: “We</p>	<p>below. The misuse of marine resources on ocean floors is becoming an increasing problem and an area of concern.</p> <p>Some companies overfish tuna to stockpile this species in order to have an advantage when prices plummet.</p> <p>The response from participant 8 is an indication that there are some organisations operating in Algoa Bay that are conscious of overfishing and have protocols in place as a preventative measure.</p> <p>The response of participant 19 is proof that the illegal activity of shark finning is still taking place. The shark population is quickly declining because vessels are over-fishing and in areas where they are not allowed to fish (Hopkins & Miller 2021). All those sharks then go to Australia and China. Chinese vessels have been reported multiple times in the South African and Algoa Bay area illegally. China have Shark Fin soup delicacies. This entails cutting the fins off sharks and</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>don't have enough enforcement and punishment – yes. For instance, there was this vessel, the White Rose. Now that vessel has numerous times been seen in Algoa Bay in the Marine Protected Areas, and then in the work at the other side of Hermanus. The work is a very specific marine protected area, very rich, and they go in there and do long line shark fishing. People went there and reported them to the department and to the police, and to the inspectors of the Marine Environment there, and they actually went as far as taking a boat and going out there and taking photographs of what these people are doing in the MPA. They have drone footage showing this boat was in the MPA.”</p>	<p>sometimes even throwing the shark back into the sea.</p> <p>The Department of Environmental Affairs have a lot to deal with regarding the fishing industry in terms of illegal fishing, fishing without a permit, not obeying permit conditions and not having adequate resources. If a vessel is catching fish near the MPA, where St Croix penguins are, then the fishing vessel has a sensor that must be on to track the vessel. However, sometimes organisations switch it off and then go into the MPA and fish in that area. Then they later exit and switch the sensor on again. This was allegedly what happened with the White Rose vessel that was reported to be fishing in an MPA.</p> <p>Unfortunately, the White Rose still operates in Algoa Bay.</p> <p>In 2020, six illegal Chinese fishing trawlers were caught in South African waters without a permit and were arrested and fined by the Department of Environment, Forestry and Fisheries but were allowed to leave. The illegal vessels then requested permission from SAMSA to dock at Algoa Bay after experiencing bad weather off Port Elizabeth. SAMSA granted their request and later allowed them to leave (Harper 2020). This is indicative of lack of adequate law enforcement and punishments in South Africa and poses a danger to the local community.</p>

Sub-theme	Participant's response	Interpretation findings and comments
4.2 Punishments in place and law enforcement	<p>Penalties</p> <p>Participant 3: "Yes, yes, there are penalties. There are penalties in place if there are any issues with regard to pollution or people cleaning bilges out at sea, or you have an oil spill. There are fines that can be given from SAMSA's side. Also on the vessel and the maintenance of the vessel and any construction done on the vessel has to be pre-approved by SAMSA as well. So if you go ahead for example and do something on the boat that is not compliant, then we can be fined for that as well. On the other hand, we also have the permit conditions, and that is very serious, because if you contravene the Marine Resources Act, you could lose your permits because they could institute what they call Section 28 against you, and that could result in you losing your permit on the vessel as well. So that is why in order to operate our business, we need to adhere to all of those laws and regulations."</p>	<p>The two above responses are conflicting. On the one hand, there is an indication that the penalties and punishments in place are a hindrance to illegal and non-complaint behaviour as it will mean money lost that is not an option; on the other hand, some organisations could see the penalties as small change in comparison to the profits they are making. Therefore, regarding the latter response, non-compliance is the more lucrative option and most profitable option which again ties in with the ToF.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>Participant 18: "If I know that my poaching activity is going to get me like a R20000 fine or maybe a two-year suspended sentence, it is really not going to make me feel like 'oh okay, I shouldn't do this or in a lot of cases, it is easy for me to pay the R50000 fine, or R500000 because in the grand scheme of things if I am a commercial fishing company R500000 is really pocket change compared to what I am actually turning over on an annual basis. R500000 is not necessarily going to hurt me very much and so I will pay the fine and continue to do what I am doing."</p>	
	<p>Incidents</p> <p>Participant 15: "Well I mean if somebody throws a whole bag of garbage over the side and we get caught: the ship is going to be arrested, the captain is going to be arrested and he is going to face humungous fines. And I mean the ship is going to be held indefinitely, so that is loss of earnings – the fact that the ship is not trading. The captain is going to be penalised because he is the onboard representative, he could</p>	<p>Participant 15 views jail time as being an obstruction of operations and earning a profit which makes non-compliance by means of dumping too risky. However, in order for a law enforcement agent to react, they must see the crime committed in their presence, or evidence must be obtained under affidavit, of a person that witnessed an incident, or photographic evidence must be provided to show that this incident occurred. If there was no witness of dumping or non-compliance occurring, it makes it difficult to enforce punishment.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>even face jail. Which is not an option for us.”</p>	<p>Participant 15 emphasised the difficulty of apprehension of criminals as even with the shooting of seals from the squid industry, there are no affidavits from fellow crew members for those particular incidents or any reporting of the vessel or the individual commanding that vessel. This shows that due to the way the law is structured, it makes convicting individuals and organisations very difficult.</p>
	<p>Negligence</p> <p>A participant one of the country's National Parks said:</p> <p>“Department should track that and even if it is on they go into the MPA you can see it, and the Department then should act. But very often they don't track that because there is no one that looks; there is tracking being done but nobody actually looks at where the ships are. And they just say 'but we do track them.' So, they can fish for fish near St Croix and on the map you can see them, but there is no one sitting behind the computer and looking at the map. And then the other thing is being prosecuted for it, so they get away with it and so they do it again, and again and again. So, the whole marine protection issue is very difficult because the marine area is so vast.”</p>	<p>There are many policies in place; however, they are not being implemented. The Department of Environmental Affairs are also in charge of regulating bunkering, not just SAMSA. SAMSA is tasked with regulating the shipping licensing and operating licences, while the Department of Environmental Affairs are in charge of making sure that SAMSA is enforcing the legislation which is evidently not the case as per responses from many participants. There is a current lack of segregation of duty.</p> <p>There is also a lack of trained and skilled personnel within law enforcement agencies. There are many agents who are not aware of the legislation and therefore do not know how to enforce the law. Specific sizes and species of fish that are allowed and not allowed must be known by those in industry as well as by law enforcement agents.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>A participant who is an environmental conservationist said: "And then under that I think it is 5% that The country must be protecting. And so SA has extended the protected areas but only on the maps, there is no enforcement of that.'</p> <p>A participant who is a penguin conservationist said: 'The acting head of SAMSA admitted to there being problems with bunkering. This comes after he has been removed from SAMSA. He is under investigation exposing the transgressions occurring with bunkering. Transnet is responsible for bunkering – and Coega, because it falls under the Coega Development Corporation – they have the response as well. But something happened there, I don't know what happened, but Coega was pushed out of the way and they don't have the say and Transnet was the one doing all the things. So, Transnet with SAMSA did a lot of things which they were not supposed to do, it seems."</p>	
	<p>Accountability</p> <p>Participant 12: "So if I am the entity that is responsible for having for example... if we as an entity have six vessels that go out to different regions, so maybe if we look</p>	<p>The response is indicative of the fact that there needs to be more stringent punishments not only for those not adhering to rules and regulations, but also those who were negligent. If there is a foreign vessel fishing</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>at the Eastern Cape, there are two vessels assigned to the Eastern Cape and are responsible for monitoring, and going to out sea and monitoring and ensuring that all the vessels out there fishing, are doing so legally and they have the permission, the license or whatever to be there. Then if that is not happening, if for example a Chinese vessel, an Indonesian vessel or whatever, is found fishing illegally and both the vessels that are assigned to the Eastern Cape are actually docked and are not going out to monitor, then someone else needs to in addition be held accountable – why were you not monitoring or why were you not doing surveillance when you were supposed to”.</p>	<p>illegally that was not convicted, there still needs to be a party to take responsibility and accountability who are those trusted with the task of monitoring and enforcing legislation not only those who are being non-compliant. Currently there is very little accountability taken by law enforcement agents for incidents occurring in Algoa Bay.</p>
	<p>Lack of resources</p> <p>A participant that has experience in law enforcement: “We had about 12 or 14 rubber ducks here that drove us crazy, day and night operations and stuff. Now because they know there is no enforcement at night at sea. And I forgot to mention to you the boat launch sites, the slipways, are completely unmanned. So, these guys use these loopholes and the fact that</p>	<p>Negligence on behalf of those in charge of safeguarding the ocean is not always the culprit, often non-compliance slips through the cracks due to there being a paucity of resources as mentioned by the above two participants. There are a substantial number of reports and complaints of abalone poaching in Algoa Bay as well as reports against the legal fisheries in the estuaries in terms of illegal gill netting, overfishing, catching undersize fish, and illegal bait selling taking place at night. Due to there</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>these things are unmanned to launch a vessel. Like Kings Beach, that is an unmanned slipway, and there is a parking lot there and then you can travel through the super tubes there next to the slide, there is a little pathway that leads to the beach, so they launch there. It's open. So, a guy can take his rubber duck from wherever, come, and two or three o'clock in the morning he pulls in there and he's gone – Bird Island. And he can come through Swartkops, the river, or he can come back the same way. There is nobody there, there is no security, nobody on duty.”</p> <p>The participant also said: “So that in a nutshell is what I do on a day to day basis. In December 2016 we had a monitoring contract in place in the harbours, the main harbours where the commercial sectors fish, like the prawn, the rock lobster, the line fish and the small and large pelagics, the sardine and the swordfish and stuff are landed: we had an outsourced company taking care of that activity. When the vessel comes in the whole catch is recorded and the species composition, identification and stats and all that. So, we have been doing that since 2016. Currently there is no money available at</p>	<p>being a shortage of officers on the ground, there is a lack of capacity to police these activities. Fishery compliance officers are portrayed to be a law enforcement agency to combat poaching, illegal fishing, and other unlawful fishing activities but they lack the tools to do the job properly. They are not appointed in terms of EMI (Environmental Management Inspectorate) status to carry their own dossiers, and carry out their own investigations which proves to be a stumbling block to stop non-compliance. The lack of boats makes it increasingly difficult for law enforcement and rangers to patrol and catch individuals in the act of non-compliance which creates avenues for criminals to become creative in evading arrests.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>this stage for us to do that, so at the moment a lot of our work has been consumed by administrative things, almost like a clerk being in the harbour, present when these vessels come in. It is long hours work there, sometimes you have to work 6,7 or 10 hours at a vessel you know, until the entire catch is off Absolutely. But we do have environmental legislation and it covers protection of the environment, it is just that this, because it was a new industry, SAMSA just from what I understand said it could go ahead without an EIA because it is not covered by current legislation – which seems to me to be the completely wrong way to think of these things, surely one should say if something is new and not covered, then that is the first type of industry that must go for EIA. Because the bay is a fantastic area and the thing is oil pollution, pollution that could be potentially created by this industry will firstly impact on the African penguin populations that are so close to Coega harbour. So, on St Croix island, and St Croix population is already struggling because we think maybe because of disturbance”</p>	

Sub-theme	Participant's response	Interpretation findings and comments
	<p>A participant from one of the country's National Parks said: " We don't have marine resources to patrol it, boats, people, but also scientific resources."</p>	
	<p>Jurisdiction</p> <p>A participant with experience in law enforcement said: "So they are looking at appointing us and giving us powers to also enforce the legislation in the marine protected areas of the Addo National Elephant Park which includes that bay island group, and Sardinia Bay. So, Sanpark is currently managing the island set up and the local authority is doing the Sardinia Bay section. So we do prioritise certain other activities which we are not really complainants but ... so I can use an example now: if for argument's sake I do happen to patrol an area close to or inside a marine protected area I can become the complainant, but obviously I will go to court on what I have observed, but the case is actually handled under the jurisdiction of the local authority who basically has jurisdiction over the matter. because of competition with fisheries."</p>	<p>The response of the compliance officer indicates how complicated it is to police an area and report incidents. It is not simple to conduct an inspection of a fishing vessel or entity without a warrant or jurisdiction which concedes to the criminal activities in many cases.</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>Bribery and corruption</p> <p>Participant 9: "In any event if you are a policeman who has to stop poaching or a company listed on the JSE and it is all about profits, then first bread then morals – sad but true."</p>	<p>Participant 9's response eluded to bribery and corruption that are both rife in South Africa and the Algoa Bay region. Many law enforcement officers are not in a financially stable position which makes them more likely to accept a monetary bribe. There have also been reports of both corruption and misappropriation of funds within SAMSA. In 2021 a whistle-blower reported on alleged misconduct received from external and internal stakeholders and named three senior executives from SAMSA in the report (Carnie 2021b).</p> <p>The Department of Public Service and Administration reported their troubles with SAMSA and accused the agency of acting unlawfully since the inception of the BEE bunkering deal with a Greek Company, Aegean. SAMSA was criticised for allowing the CEO in charge of authorising the licence for the deal to also become a partner.</p> <p>It was also reported that SAMSA had collected approximately one billion rand over the span of 5 years of unsanctioned expenditure (McCain 2021).</p> <p>This proves that there is corruption and misallocation of funds that could be used to distribute adequate resources to the necessary law enforcement agencies.</p>
	<p>Fishing rights</p> <p>A compliance officer said: "There are many commer-</p>	<p>This affects the livelihood and jobs of our local communities. It also hinders with local food supply. Chinese vessels have been illegally fishing and</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>cial sectors and South Africa has three pillars. There is the TAE sector, that is your total applied efforts sector. In the TAE sector, fishermen are catching fish with their hands, they are moving with lines attached to the boat, such as sword fishing. Fishermen also go into the intertidal zone and harvest oysters for commercial use, using their hands. There is then TAC sector, total allowable catch. This sector uses heavy fishing gear, where fishermen are not physically catching the fish with their hands, rather trawl nets, long lines, fish tracks for rock lobster example are being used. Lastly, there is a foreign vessel section where rights are allocated to other countries to come and fish in South African waters. However, lately the department has developed a system or policy where a person from China is invited with the rights holder or fishing vessel owner sit down with the local community like the cray fishing community and then the fishing right is transferred to the Chinese vessel, and they operate within South African waters.”</p>	<p>overfishing in South African waters for years (RSA 2020e). Allowing their vessels the rights to fish legally poses many risks of loss of resources.</p>
	<p>Fear A participant who is an environmental conservationist said: “I have submitted reports to what was then the Department of Environmental Affairs, and now is Department of Fisheries, Forestry</p>	<p>The response brings to light the fear of reporting non-compliance due to safety concerns on one's own life as it is a very cut-throat industry. Without reports of the incidents, makes the law enforcement agencies' job quite difficult. South Africa is far behind other</p>

Sub-theme	Participant's response	Interpretation findings and comments
	<p>and Environment. I have submitted reports to them and we have also had information shared by certain of the skippers of the chokka industry saying they know who is doing it, it is not them, they know who is doing it and it is an issue but typically they say 'they can't say who it is because they would risk their own lives then.'</p>	<p>countries as far as ensuring that there is this constant monitoring and continued surveillance, and the ability to ensure that everyone is being compliant. There is a lot of work to be done to ensure all the different stakeholders involved in any kind of activity in the marine environment are being compliant.</p>

As mentioned in Table 13, there have been many incidents of non-compliance. The perpetrators often see an opportunity to commit a crime or disregard laws when they are confident that they will not be prosecuted. Some of the reasons why criminal activity occurs are dealt with next.

4.4.4.1. Understanding why criminal activity occurs

There are three pre-conditions that make criminal activity appealing to those who are contravening the law (The Tribal Policing Strategy 2021):

- i. Motivated persons (including those who are able to condone their actions as being legitimate or needed);
- ii. Available resources that have a substantial value;
- iii. A lack of law enforcement that will prevent criminal activities from being committed.

As shown in Table 13, regarding the multiple incidents occurring in Algoa Bay, it is clear that there are no adequate consequences for these breaches because if there were, organisations would be deterred by them.

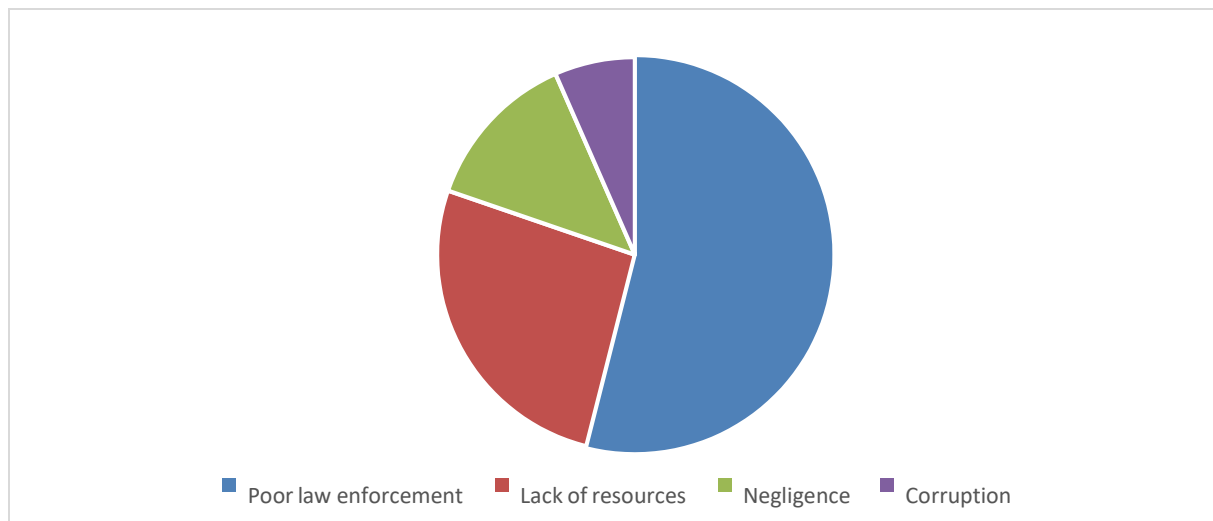
Punishments and law enforcements fall short in addressing the problem of non-compliance to marine and environmental legislation.

4.4.4.2. Are punishments a deterrence to perpetrators?

According to the existing legislation, there are penalties in place to address non-compliance to environmental legislation in Algoa Bay. Some organisations are deterred by the punishments that could be faced but others are not deterred as the cost of non-compliance is less than their financial gain or benefit which ties in with the theory of the firm used in this study. SAMSA (South African Maritime Safety Authority), Transnet Port Authorities, SAPS (South African Police Service) and the Department of Environmental Affairs are tasked with ensuring the laws are enforced and adhered to; however, they are not ensuring that non-compliance is monitored and have been blamed for the high incident rate in Algoa Bay and the rest of South Africa. The Environmental Management Inspectorate (Green Scorpions) are tasked with investigating environmental crimes after they have been identified by the law enforcement agencies.

Many participants have expressed their views on poor law enforcement. The pie graph in Figure 11 below shows the number of participant responses pertaining to law enforcement and how law enforcement falls short in addressing non-compliance to environmental legislation.

FIGURE 11:
LAW ENFORCEMENT AS A CONTRIBUTOR TO HIGH INCIDENTS OF NON-COMPLIANCE AND LAW ARRESTS AND CONVICTIONS



Source: Own construction form data

Below are statistics regarding cases and convictions in South Africa (National Environmental Compliance and Enforcement Report, 2018/2019) (RSA 2019):

- i The Environmental Management Inspectorate:
 - A decrease in EMI Field Rangers from 1726 in 2016/17 to 1723 in 2017/18 showing the decrease in manpower on the field.
- ii Enforcement:
 - 1092 arrests in 2016/17 to 926 arrests in 2017/18 show a decrease of the number of arrests made.
 - Convictions have decreased by 30% from 76 in 2016/17 to 53 in 2017/18.
- iii Overall national compliance and enforcement statistics, compliance monitoring:
 - During the inspections recorded in 2017/18, 2894 were identified as non-compliant.

- 14% of non-compliances reported were both blue and brown issues as reported by DWS (Department of Water and Sanitation).
- 3428 inspection reports were finalised in the year 2016/17 which decreased in 2017/18 to 3184.

Clearly more actions are needed for law enforcement as the current system does not work to safeguard the environment. The next theme tackles incentivisation and rewarding good behaviour in order to improve mindsets and decision making to become more compliant to marine and environmental legislation.

4.4.5. Theme 5: Incentivisation and rewarding of behaviour

This theme assesses what incentive would encourage compliance and what type of incentive would be adequate to replace the benefit of non-compliance to a company.

Table 14 shows the different ways in which organisations can be driven into complying to environmental legislation through incentives and acts that benefit them financially in the long run.

TABLE 14:
THEME 5: INCENTIVISATION AND REWARDING OF BEHAVIOUR

Incentive	Participant's response	Interpretation findings and comments
Public opinion, customers	<p>Participant 7: "Like the MSC fisheries, I don't know if you know about the MSC qualifications. So MSC, Marine Stewardship Council, and FSC so there is the Forestry Stewardship Council, ensure businesses comply with seven things to keep the eco system safe or it is sustainably harvested. The same with the Marine Stewardship Council are the fisheries well managed, are they doing something to prevent let's say bycatch, so like for example, the trawlers or the long line fisheries, they put this flier equipment along these lines to prevent the seabirds from getting tangled in their lines. That is one way of preventing bycatch, so bycatch is anything that is caught that isn't the species that is meant to be caught. So in a trawl, you know what a trawler is and you know how it is dragged along the bottom of the ocean, that is very non selective in what it is</p>	<p>Participant 7 clearly indicates that consumer perception is very important as humans are driven towards purchasing items that proclaim to be environmentally friend and green over products that are not. The shift to environmentally friendly and conducive operations will potentially increase sales of their products which will increase profits. More organisations should be encouraged to operate in environmentally friendly ways to receive recognition.</p> <p>There have however been reports of organisations claiming to be environmentally friendly or dolphin friendly which was not the case.</p>

Incentive	Participant's response	Interpretation findings and comments
	<p>catching, so it has got a lot of bycatch, so that is one of the ways that like the Marine Stewardship Council assesses whether or not the fisheries are being compliant or not, are they trying to reduce the impact on the ocean are they trying to fish sustainably, are they giving the fish stocks enough time to recover etc., etc., so that is an incentive, so the Marine Stewardship Council is obviously trying to tell the consumer you should buy MSC certified fish that you buy in the shops, the same with like the SASSI Green List, they are trying to tell people you should buy SASSI Green Fish which are basically sustainably harvested and quick growing compared to fish that are on the Red List that aren't sustainably harvested or there stocks are to low or something like that. so, there are incentives out there that are sort of working, people are registering that is a Green fish and that's an Orange fish we shouldn't really buy that lets buy something else"</p>	

Incentive	Participant's response	Interpretation findings and comments
Tourism	Participant 7: "So if you want to attract tourists you make a collective effort to clean up."	As mentioned by participant 7, tourists are attracted to aesthetic and pristine beaches and cities which is crucial to boost the economy by supporting local businesses and bigger companies.
Tax incentives	Participant 19: "So, the notion of tax incentives, tax breaks"	<p>The Proceeds of Crime Act 2002 part 6 states that SARS may tax the proceeds received from criminal activities and outstanding tax liabilities. This piece of legislation could be used as a deterrence; however, Section 18A of the Income Tax Act No. 58 of 1962 (the Act) allows a deduction of up to 10% of taxable income for organisations if they make a donation to a qualifying organisation. This incentivises and encourages organisations to donate to conservationists and non-governmental organisations (NGOs).</p> <p>There is currently a special economic zone (SEZ) tax deduction; however, it pertains to a 10% allowance which refers to a deduction of the cost of new and unused buildings in a SEZ area which is allowed to be taken off against income of a qualifying company as defined in the Income Tax Act whereby the building is used to generate income in the SEZ. This however does not serve as an incentive.</p>

Next are other incentives to encourage good behaviour that were not discussed by participants.

Penalties

A review could perhaps take place of the penalties that are attached to specific illegal activities as well as the organisation to match the amount of the penalty to the annual revenue of the organisation. The review should determine whether those penalties are severe enough to deter that particular illegal activity, which ultimately needs to be a punishment affixed for not obeying the law including lengthening jail time. The fear of punishment should incentivise good behaviour.

Technology

Satellite technology exists that is able to trace locations of all vessels within the proximity of an area or zone. The computers can decipher which ships were in the port and where oil spillages came from. There should be more people trained on how to use this technology and more advancements on how to prevent ships turning off their signals to prevent capture. The fear of being caught should encourage good behaviour.

Investors

Investors are essential for the growth of an organisation which makes it vital for the businesses to maintain healthy and transparent relationships with their investors. If they do not behave in an ethical manner and have suffered reputational damage due to non-compliance to marine or environmental legislation, they risk losing investors, but if they are compliant and are favoured in the public eye for doing so, they could benefit from additional investors.

The next section is a summary of the findings in Chapter 4.

4.5. SUMMARY OF FINDINGS

The data collection process set out to gauge the environmental impact seen by organisations as well incidents of non-compliance to environmental legislation to prove that there is poor corporate governance within organisations and a framework is needed to enhance compliance to environmental legislation.

It is evident from the participants' responses that an environmental awareness exists and that organisations in Algoa Bay are thus aware of their role and responsibility to the environment. However, the very high incident rate reported indicates that there is non-compliance to environmental legislation either incidentally or deliberately.

The lack of law enforcement and the inadequate punishments provide room for non-compliance and allow criminal activity to continue with reluctant fear of being apprehended.

Management and other stakeholders of organisations do hold power to influence decisions and encourage good behaviour but obtaining complete compliance in terms of marine and environmental legislation is not achievable due to the need for some of the activities in the oceans economy and livelihoods depending on them. The above themes prove that a corporate governance framework is needed to streamline compliance in Algoa Bay to improve behaviour of organisations and the overall environmental health.

The next chapter is the conclusion to the study and will cover the concluding remarks and make recommendations in terms of the corporate governance framework as well as future research prospects.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1. INTRODUCTION

The previous chapter presented the data collected from participants and categorised the responses into the five themes which were further broken down into seven sub-themes. Based on the research conducted and responses from participants, there is conclusive evidence that even though environmental awareness appears to exist, there is still non-compliance to marine and environmental legislation in Algoa Bay by organisations and a corporate governance framework is needed to streamline adherence to legislation.

This chapter is divided into six parts including the summary of chapters, how research objectives were met, recommendations on corporate governance as well as the significance of study, limitations and future research prospects.

The recommendations regarding the corporate governance framework that can be implemented by organisations in the Algoa Bay region to enhance compliance to environmental legislation are discussed in detail.

The next section provides a brief overview of Chapters 1, 2, 3 and 4.

5.2. CHAPTER HIGHLIGHTS

This section outlines and highlights the key points illustrated per chapter that are essential in the context of the research problem (see Section 1.6) and associated objectives (see Section 1.7) of the study.

5.2.1. Chapter 1 highlights

Chapter 1 provided an overview to the study and justified the need for the study due to changes to depleting fish resources in contrast to an increasing human population. Furthermore, the following points surfaced clearly from Chapter 1:

- The Theory of the Firm was used as the meta theory and lens of the study which explains organisations' goal of profit maximisation which determines their decision to comply to legislation or not (See Section 1.5).

- Clear guidance is currently lacking in terms of a strategy to implement a framework for governance compliance to marine legislation in South Africa and encouraging individuals to comply with and conserve the environment. This is particularly pertinent to large marine areas in the Algoa Bay region. This lack of compliance is causing fish stocks and populations to decrease which serves as a threat to livelihoods in future (see Section 1.6).
- The research problem, and objectives were introduced in Chapter 1 to indicate the direction of the study (see Section 1.6).
- This chapter also explained the research methodology in depth by presenting the population that was chosen for the recruitment process as well as how the data collected was analysed (see Section 1.8).
- The background into the research and the nature of this study were explained as well as the research methods and data collection – that is, how data was extracted and used for this study (see Section 1.8.2).
- The ethical considerations of the study were discussed to ascertain the protocols in place to have maintained the integrity of the study (see Section 1.8.9).

5.2.2. Chapter 2 highlights

This chapter elaborated on governance frameworks and other relevant literature pertaining to the study. The following points surfaced clearly from Chapter 2:

- A governance structure is one that combines controls, policies and guidelines that assist the business in achieving its objectives and satisfy the needs of the relevant stakeholders (see Section 2.3.1).
- Governance frameworks are important as they can benefit shareholders by ensuring that managers in the companies act in their best interest, avoiding challenges of only looking at profit maximisation as outlined in the Theory of the Firm (see Section 2.3.1).
- The incidents of non-compliance are indicative that there is a need for a corporate governance framework, as addressed in the research problem of Chapter 1, as the impact of these incidents could have multiple negative consequences for marine life as well as society (See section 2.6).

5.2.3. Chapter 3 highlights

Chapter 3 outlined the oceans economy and the activities and stakeholders that provide significant influence. The following points surfaced clearly from Chapter 3:

- The different role players within the Algoa Bay region that have an effect on the oceans economy were identified and explained (see Section 3.2).
- The maritime activities that contribute to the oceans economy were contextualised and outlined the need for ocean governance (see Section 3.3).
- The law enforcement of coastal, marine and environmental legislation was explained in detail along with the law enforcement agents tasked with ensuring organisations and society adhere to the law and regulations (see Section 3.6).
- The chapter also explained in detail the structure of Algoa Bay and the different types of maritime activities that contribute to the oceans economy (see Section 3.7).

5.2.4. Chapter 4 highlights

Chapter 4 broke down and analysed the data collected from the participants of the study. The data was critically analysed according to five themes which were further broken down into sub-themes (See Chapter 4).

In the context of the research problem and the research objectives of the study, the following points surfaced in Chapter 4:

- There appeared to be environmental awareness amongst organisations operating in Algoa Bay; however, the impact seen on the environment indicates that there is non-compliance to environmental legislation that is both incidental and deliberate (see Section 4.4.1).
- The impact seen on the environment such as fish depletion and penguin endangerment is due to pollution and oil spills because of endangering maritime operations in Algoa Bay (see Section 4.4.1).
- The organisations operating in Algoa Bay contribute significantly to the oceans economy; however, the negative impact on the environment could see the decrease of tourism which forms an important part of the country's economy (see Section 4.4.1).

- The different types of legislation and how it applies to organisations operating in Algoa Bay were outlined in Chapter 4 (see Section 4.4.2).
- Stakeholders in organisations operating in Algoa Bay need to voice their opinion more in order to promote change and ensure organisations are aware of their actions (see Section 4.4.3).
- Law enforcement agencies fall short when it comes to enforcing laws and regulations for numerous reasons such as lack of resources and negligence. This is a contributing factor to the high incidents of non-compliance (see Section 4.4.4).
- Incentives and ways to reward good behaviour to encourage compliance were also identified and discussed in Chapter 4 (see Section 4.4.5).

The next section addresses the objectives of the study and how the data collected has answered the secondary objectives.

5.3. CONCLUSIONS DERIVED FROM THE DATA COLLECTED TO ANSWER THE RESEARCH OBJECTIVES

The data collected from participants were obtained using an interview guide that was divided into 5 themes (see Section 1.8.6.2) that were developed to answer the objectives of the study (see Section 1.7). The data provided were sufficient and answered the research objectives to address the research problem as mentioned in Chapter 1. The Theory of the Firm was useful in deriving the conclusions per research objective as it led to making an educated guess regarding whether non-compliance exists and what the contributing factors are. It explained the decision-making process of managers and owners and proved a corporate governance framework is needed and would streamline compliance to marine and environmental legislation.

- PRO 1: To design a strategy for the implementation of a corporate governance framework to encourage compliance to coastal and marine legislation (see Section 1.7.1) – Recommendations have been made that provide a framework for a corporate governance strategy for organisations in Algoa Bay to be encouraged to comply to the necessary environmental legislation.
- To give effect to the primary objective, the following secondary objectives were formulated as follows:

- SRO1: To conceptualise corporate governance, and related pronouncements, in relation to the oceans economy in South Africa – In Chapter 1 (Sections 1.2 and 1.3), 2 (Sections 2.3; 2.4 and 2.5) and 3 (Section 3.4) of the study, the corporate governance and related pronouncements were outlined and explained in the context of the study as well as how this relates to the oceans economy.
- SRO2: To identify and contextualise coastal and marine legislation (including international agreements) relating to the oceans economy in the Algoa Bay region – Marine, coastal and environmental legislation as well as international agreements pertaining to the oceans economy were outlined in Chapter 3 (Section 3.6) and Chapter 4 (Section 4.4.2) and explained in relation to the different sectors that operate within Algoa Bay.
- SRO3: To define and contextualise environmental management; environment management systems; and the role and responsibilities of corporate management in relation to marine and coastal governance practices – Environmental management and systems as well as the role and responsibility of corporate management were identified along with their tasks and involvement in the environmental preservation in Chapter 2 (Section 2.4) and Chapter 4 (Section 4.4.3).
- SRO4: To identify and contextualise role players of organisations operating in the Algoa Bay region – The role-players that have a substantial influence on organisations in Algoa Bay and oceans economy were outlined. Each play an integral role in decision making within an organisation. This was dealt with in Chapter 3 (Section 3.2) and Chapter 4 (Section 4.4.3).
- SRO5: To identify and contextualise areas of non-compliance to marine legislation in the Algoa Bay region – The qualitative data obtained during the interview process identified and confirmed incidents of non-compliance to marine and environmental legislation in Algoa Bay and how industries have disregarded the environment for their own financial gain. This was dealt with in Chapter 4 (Section 4.4.4).
- SRO6: To define and explain the potential environmental impact/s resulting from non-compliance to marine legislation (poor corporate governance) – Participants from the study as well as research conducted revealed and confirmed the

negative impact that organisations (due to non-compliance) have had on the environment, marine life and humans resulting in a declining fish population, endangerment of African Penguins and a potential decrease in tourism as a result of increased plastic and debris pollution due to non-compliance. The apparent factors contributing to non-compliance, as mentioned by participants, are due to poor corporate governance and law enforcement. This was dealt within Chapter 4 (Section 4.4.1).

Recommendations are contingent on the results from the data collected in the research and stipulate the change required and guidance that should be followed by the role players who have the biggest interest in an organisation or are responsible for decision making.

The data collected in this study are in line with the Theory of the Firm and how business management weighs the cost of compliance against the cost of non-compliance and chooses the most profitable option. The data collected also met the primary and secondary objectives and prove that recommendations pertaining to a corporate governance framework are needed and must be implemented by organisations in the Algoa Bay area.

The next section outlines the recommendations of a corporate governance framework.

5.4. RECOMMENDATIONS – CORPORATE GOVERNANCE FRAMEWORK

The purpose of corporate governance recommendations is to ensure there is value and sound, accountable management to ensure organisations' success in the long run (Carlsberg Group 2017).

5.4.1. Recommendations for organisations operating in the Algoa Bay region

Corporate governance comprises the manner in which companies are governed and the methods used for this. It outlines those with accountability as well as those who have the power to make decisions.

The main components of a strategy for enhancing corporate governance in the Algoa Bay region are outlined next. These main components are accountability, transparency, fairness, and responsibility.

i. Accountability

Accountability entails taking ownership of compliance to marine and environmental legislation by means of the following:

- Management and staff of an organisation should be trained and educated about environmental importance and preservation and how their ill actions or negligence can lead to vast negative impacts that will in extension hinder operations in the future (Section 4.4.1).
- Organisations should do an assessment to gauge whether their compliance policies are in line with the coastal and marine legislation of the industry and if they are being properly adhered to and checked regularly.
- There should be effective and appropriate punishments to deter poor behaviour from management and staff such as warning, suspension and termination (Section 4.4.5).

ii. Transparency

Transparency ensures that organisations are open with their stakeholders and are able to be held accountable for negligence or wrongdoing in the eyes of the law.

- The Memorandum of Incorporation should outline the need for ‘going green’ and include goals that the organisation should achieve.
- There should be transparency and stakeholder inclusivity. Environmental reports should also be disclosed. The interests of everyone must be considered. Investors’ confidence is important as capital is crucial for organisational growth (Section 4.4.3).
- The audit committee of an organisation should evaluate the organisation’s compliance with coastal and marine legislation regularly and provide an appraisal.

iii. Fairness

Fairness speaks to the honesty and impartiality of organisations as well as their adherence to laws and regulations.

- There should be a policy in place to address conflict of interests, for example if a member of management is a connected person to a law enforcement agent.
- There should be sufficient capacity within the workforce and appropriate committees should exist within organisations to recognise and prevent any non-compliance.
- Staff should be hired based on their skills, competency and ability to perform tasks. Untrained personnel should not be tasked with operations at sea as it is too risky for the organisation's operations as well as the well-being of the environment.

iv. Responsibility

Responsibility is the action of taking control over a situation using morals and laws as a compass. It also ensures that accountability is taken.

- There should be an appointment of a Head of Compliance (according to King IV) to be tasked with the responsibility of monitoring management and ensuring that there is strict compliance with procedures and protocols as well as awareness of risks associated to the business activities if there is non-compliance.
- All applicable legislation, policies and regulations pertaining to an organisation should be identified and prioritised (Section 4.4.2).
- All national and local legislative or policy amendments and changes should be implemented as soon as they are effective, and staff should be aware of them via workshops or seminars (Section 4.4.1).
- A requirement on equipment and gear used by organisations in Algoa Bay should be environmentally friendly and conducive (Section 4.4.1).
- All fuel and equipment used should be non-plastic and environmentally safe (Section 4.4.1).
- There should be segregation of duty of those working on the ships and vessels to ensure there is no inappropriate behaviour or short cuts taken by staff.
- Bonuses or monetary incentives can encourage responsible, good and compliant behaviour from staff (Section 4.4.5).

Apart from sound corporate governance, it is also evident that law enforcement in South Africa requires improvement and guidance. Recommendations for enhancing law enforcement are outlined next.

5.4.2. Recommendations for law enforcement

From the findings reported in Chapter 4, the following recommendations are formulated in respect of law enforcement:

- **Improving information presented and statistics on compliance** – More studies are needed to quantify the extent of non-compliance to environmental legislation and to decipher to what level financial and natural resources are being damaged. Assessment is needed for any environmental damage suffered as a result of marine-related non-compliance.
- **Improving transparency with the public** – Chapter 4 indicated that environmental awareness was not a problem amongst organisations but perhaps the public needs to be made more environmentally aware. They also deserve to be alerted to incidents of non-compliance occurring and any new operations in Algoa Bay to avoid a similar situation to the introduction of bunkering whereby the public were blindsided.
- **Improving information presented and statistics on compliance** – More studies are needed to quantify the extent of non-compliance to environmental legislation and to decipher to what level of financial and natural resources are being damaged. Assessment is needed for any environmental damage suffered as a result of marine-related non-compliance.
- **Coordinating law enforcement** – Law enforcement agencies should be aware of what other agencies in the same field are busy with and should be able to share data and information where needed.
- **Avoiding futile punishments** – Appropriate punishments need to be given to offenders to match the crime that was committed. Punishments such as negligible fines and temporary suspension of permits do not deter criminals.
- **Changing attitudes and mindsets** – An adequate educational initiative is needed to alter public attitudes and mindsets regarding the importance of complying to environmental legislation in order preserve the environment. This

can be accomplished with social media and campaigns carried out by law enforcement agencies.

The next section outlines the importance of the study and how it will add to the existing field of knowledge.

5.5. SIGNIFICANCE OF THE STUDY

The study provides managers and owners of organisations with a strategy to implement effective corporate governance frameworks to enhance compliance to environmental and marine legislation – this is essential due to the importance of the ocean to human life. Furthermore, the results of this research will contribute to the existing body of knowledge within the oceans economy. This study also aimed to address the problem stated in Chapter 1.

It became apparent in recent times that there was a critical need to create awareness amongst organisations operating in the Algoa Bay region of their roles and to acknowledge their responsibilities as non-compliance to environmental legislation was evident, based on the news and marine life statistics. Environmental and climate changes in conjunction with overfishing have been hindering the food supply of African Penguins considerably.

Oil spills also play a big role and in July 2019 SANCCOB (South African Foundation for the Conservation of Coastal Seabirds) was called in to rescue oiled penguins caused by bunkering which was intended to improve the oceans economy by Operation Phakisa (SANCCOB 2019). In September 2019, it was reported that the African Penguin population had declined drastically, i.e. by more than 95%, over the past century and that the largest colony of the African Penguins species is found in South Africa, on islands around Algoa Bay (SANCCOB 2019).

Despite the significance of the research, the next section outlines the limitations of the study.

5.6. LIMITATIONS OF THE STUDY

The research limitations of a study are those factors that could potentially negatively influence the data collection process or interpretation of the research data from a design or methodological perspective (Price & Murnan 2004). The qualitative research methodology of this study overcame the limitations by ensuring the ethical

considerations were adhered to and where interview questions were concerned, the questions asked were non-offensive and non-biased to provide a safe space for the participants. If participants did not wish to answer or did not want to elaborate, the interviewer moved on to another theme or question.

Some areas that posed as limitations in the context of the study are the following:

i. Geographical area

The research was limited to corporate governance and compliance to marine legislation by organisations in the Algoa Bay region only, as interviews were conducted with business owners and managers just within this specific area for data collection purposes.

The reason that Algoa Bay was chosen as the region for the study was due to locality of the principal investigator as well as the rich and diverse biodiversity in the area that is affected by the vast operations in the region.

ii. SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2)/ COVID-19 (coronavirus disease 2019)

Due to the Covid-19 pandemic, the data collection process was limited to electronic communication methods which was not conducive to all participants as a small number of them were not accustomed to virtual correspondence. Poor connectivity and loadshedding also made it difficult to converse clearly with a few participants and some interviews had to be rescheduled.

iii. Fear to participate

The context of the study delved into contentious issues regarding the harm that some organisations are responsible for to the environment and marine life. Many owners and managers could have been dishonest in how they presented their organisations to avoid disgrace and accountability. To avoid dishonest responses, participants were reminded and reassured throughout the interview process that their identities would remain anonymous and that the study posed a low risk.

The next section presents possible future research that could follow on from the current research topic.

5.7. FUTURE RESEARCH

Areas for future research include ocean accounting which is the collection of data to delineate the multiplex environmental and economic systems of the ocean. Ocean accounting is used to make decisions regarding how oceans can be used sustainably (Global Ocean Accounts Partnership 2019). Ocean accounts extract data from various ocean-based activities and include the rich biodiversity. Ocean accounting is important as:

- it can monitor the structure and composition of the ocean economy as well as the state of the coastal and marine environment
- recognising jobs and industries that depend on oceanic ecosystems.

Future research could be based on ocean accounting and more specifically the structure of the oceans economy and how job opportunities in South Africa are affected by foreign companies.

The current study focused only on Algoa Bay but could be expanded in future and compared with other areas for more comprehensive data.

Another area for future research includes examining how law enforcement agents are trained and how the agencies allocate funds to their respective departments to address concerns raised of corruption (see Section 4.4.4). Management training is also an essential area of research to help understand how managers are trained to respond when it comes to laws and regulations.

A study to examine the gear and equipment used by commercial fisheries would assist industries in minimising by-catch, to allow fish populations to regenerate and avoid endangerment.

The summary and conclusion of the chapter are presented in the next section.

5.8. SUMMARY AND CONCLUSION

Chapter 5 discussed the highlights of the previous chapters of the study and how the primary and secondary research objectives were met through the research and interview process. The Algoa Bay area has spectacular marine resources and ecosystems and due to the nature and extent of the rich biodiversity, the area is a tourist attraction. The industries operating in Algoa, however, seemingly pose a threat

to the biodiversity due to non-compliance to environmental and marine legislation. This has been evident in the decline of the African Penguin population as well as other marine life. Law enforcement and government agencies unfortunately cannot successfully enforce compliance and therefore a corporate governance framework is needed to enhance compliance to environmental legislation. Recommendations have been made to outline the strategy for the implementation of a sound corporate governance framework that can be used by organisations in Algoa Bay (see Annexure A).

The Theory of the Firm was the theory used in this study (refer to Chapter 1, Section 1.5) to prove that organisations value profit maximisation as their primary goal and this could be at the expense of the environment. The responses from participants clearly state that organisations are willing to pay a fine which they consider to be reasonable rather than to comply to environmental legislation as the former is often the more profitable option. The participants also stated that blatant disregard for environmental legislation exists whereby organisations try to gain as much as they can from marine resources at the expense of other marine life and the environment. This indicates the theory to be valid in proving that a strategy for the implementation of a corporate governance framework is necessary to enhance compliance to environmental legislation.

The data collected from the participants helped meet the research objectives of the study to substantiate the research problem and confirm that there is limited compliance to marine and environmental legislation, which needs strategy for the implementation of a corporate governance framework to enhance and encourage compliance.

It is anticipated that the recommendations of this study will result in organisations being more considerate of the impact they have on the environment before it is too late. Humans are dependent on the ocean and therefore it is worth preserving.

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ANNEXURE A:

A strategy of the implementation of a corporate governance framework

Recommendations for organisations operating in the Algoa Bay region

Corporate Governance is the manner and methods in which companies are governed. It outlines those with accountability as well as those who have the power to make decisions.

The following outlines main components of a strategy for enhancing corporate governance in the Algoa Bay region. These main components are accountability, transparency, fairness, and responsibility. Each of these components, including suggested actions are outlined next.

I. Accountability

Accountability entails taking ownership of compliance to marine and environmental legislation by:

- Management and staff of an organisation should be trained and educated about environmental importance and preservation and how their ill actions or negligence can lead to vast negative impacts that will in extension hinder operations in the future.
- There should be an assessment done by the organisation to gauge whether the organisations compliance policies are in line with the coastal and marine legislation of the industry and if they are being properly adhered to and checked regularly.
- There should be effective and appropriate punishments to deter poor behaviour from management and staff such as warning, suspension and termination.

II. Transparency

Transparency ensures that organisations are open with their stakeholders and are able to be held accountable for negligence or wrong doing in the eyes of the law.

- The Memorandum of Incorporation should outline the need for 'going green' and an outline for goals that the organisation should achieve.

- There should be transparency and stakeholder inclusivity. Environmental reports should also be disclosed. The interests of everyone must be considered. Investors' confidence is important as capital is crucial for organisational growth.
- The audit committee of an organisation should evaluate the organisations compliance with coastal and marine legislation regularly and provide an appraisal.

III. Fairness

Fairness speaks to the honesty and impartiality of organisations as well as their adherence to laws and regulations.

- There should be a policy in place to address conflict of interests for example, if a member of management is a connected person to a law enforcement agent.
- There should be sufficient capacity within the workforce and appropriate committees should exist within organisations to recognise and prevent any non-compliance.
- Staff should be hired based on their skills, competency and ability to perform tasks. Untrained personnel should not be tasked with operations at sea as it is too risky for the organisations operations as well as the well-being of the environment.

IV. Responsibility

Responsibility is the action of taking control over a situation using morals and laws as a compass. It also ensures that accountability is taken.

- There should an appointment of a Head of Compliance (according to King IV) to be tasked with the responsibility of monitoring management and ensuring that there is strict compliance of procedures and protocols as well as awareness of risks associated to the business activities if there is non-compliance.
- All applicable legislation, policies and regulations pertaining to an organisation should be identified and prioritised.
- All national and local legislative or policy amendments and changes should be implemented as soon as they are effective, and staff should be aware of them via workshops or seminars.

- A requirement on equipment and gear used by organisations in Algoa Bay should be environmentally friendly and conducive.
- All fuel and equipment used should be non-plastic and environmentally safe.
- There should be segregation of duty of those working on the ships and vessels to ensure there is no inappropriate behaviour or short cuts taken by staff.
- Bonuses or monetary incentives can encourage responsible, good and compliant behaviour from staff.

Apart from organisations, it is also evident that law enforcement in South Africa requires improvement and guidance.


Recommendations for law enforcement

- **Improving information presented and statistics on compliance** – More studies are needed to quantify the extent of non-compliance to environmental legislation and to decipher to what level financial and natural resources are being damaged. Assessment is needed for any environmental damage suffered as a result to marine related non-compliance.
- **Improving transparency with the public** – Chapter 4 of the research study indicated that environmental awareness was not a problem amongst organisations but perhaps the public needs to be made more environmentally aware. They also deserve to be alerted to incidents of non-compliance occurring and any new operations as well in Algoa Bay to avoid a similar situation to the introduction of bunkering whereby the public were blindsided.
- **Improving information presented and statistics on compliance** – More studies are needed to quantify the extent of non-compliance to environmental legislation and to decipher to what level financial and natural resources are being damaged. Assessment is needed for any environmental damage suffered as a result to marine related non-compliance.
- **Coordinating law enforcement** – Law enforcement agencies should be aware of what other agencies in the same field are busy with and should be able to share data and information where needed.
- **Avoiding futile punishments** – Appropriate punishments need to be given to offenders to match against the crime that was committed. Punishments such

as negligible fines and temporary suspension of permits does not deter criminals.

- **Changing attitudes and mindsets** – An adequate educational initiative is needed to alter public attitudes and mindsets regarding the importance of complying to environmental legislation to preserve the environment. This can be accomplished with social media and campaigns carried out by law enforcement agencies.

APPENDIX B:
Interview guide

NELSON M  NDELA UNIVERSITY			
INTERVIEW GUIDE			
INTERVIEWER:	Andrea Lorrain Govender		
PARTICIPANT CODE:	-		
DATE:	-	VENUE:	-
DO YOU CONSENT TO PARTICIPATING IN THE INTERVIEW?	YES	NO	
PERMISSION TO RECORD INTERVIEW	Granted	Not granted	
WOULD YOU LIKE TO RECEIVE A COPY OF THE FINAL RESULTS?	YES	NO	
PURPOSE:			
Once completed, the feedback will assist in proving that a governance strategy to enhance compliance is needed; and will provide managers and owners of organisations with a strategy to implement effective corporate governance frameworks to enhance compliance to marine legislation. Furthermore, the data collected will contribute to the existing body of knowledge within the oceans economy.			
INTERVIEW STRUCTURE:			
Questions that require open-ended answers, through the undertaking of semi-structured interviews			
INTRODUCTION:			
The title of the research study is:			
ENVIRONMENTAL LEGISLATION COMPLIANCE: A STRATEGY TO IMPLEMENT A GOVERNANCE FRAMEWORK IN ALGOABAY			
The objective with the interviews is to gather qualitative data to give effect to the research objectives of the study.			

THEME 1: ENVIRONMENTAL AWARENESS

A) Objective for theme:

B) To ascertain whether organisations are sensitised to their role in corporate governance and to what extent they are actively participating in order to create environmental awareness.

1. To what extent is your organisation dependant on the marine and coastal environment to conduct business?
2. Does your organisation regard environmental protection as important?
3. Does your organisation have a process/es in place to create environmental awareness amongst employees and/or stakeholders of the organisation?
4. What organisational policies exist to stimulate environmental awareness in your organisation?
5. How do the organisation's activities impact the environment?
6. How does the environment benefit from your organisation?

THEME 2: ORGANISATIONAL POLICIES AND MARINE LEGISLATION

C) Objective for theme:

D) To determine which organisational policies, regulations and legislation that are currently in place to assist the organisation with management decisions.

7. In the context of your organisation, what are the regulations and/or laws that govern the operations of the organisation?
8. In the conduct of business operations, which regulatory bodies do your organisation have dealings with (e.g. Municipality, SAMSA, SABS, Sea Fisheries, etc.)?
9. In order to conduct business, what are the regulatory requirements that your organisation have to comply with? (e.g. fishing permits, Certificates of Fitness of vessels, etc.)
10. Do you regard the legal and regulatory requirements in place as an obstacle and burden to your business?
11. Are the current policies in place in your organisation adequate to ensure that the organisation complies with marine legislation and to what extent is the organisation that you are associated with adhering to regulatory requirements?
12. How does the management of your organisation encourage compliance to marine legislation?
13. Has your organisation engaged in international agreements that may result in, for example exporting of goods, sea fishing, manufacturing or production in the Nelson Mandela Metro?

THEME 3: STAKEHOLDERS OF ORGANISATIONS THAT CONDUCT BUSINESS IN THE OCEANS ECONOMY

E) Objective for theme:

F) To identify the organisations, individuals or communities who are the biggest role-players in an organisation.

14. Who are the stakeholders of this organisation?

15. Who has the biggest interest in or impact on your organisation?

Explain why or how.

THEME 4: COMPLIANCE TO POLICIES, LAWS AND REGULATIONS

G) Objective for theme:

H) To assess the risks of compliance vs non-compliance and which is more lucrative to management of organisations.

16. Is it important for your organisation to comply with marine legislation?

17. If applicable, are you able to provide reasons for the aspects of the organisation that are not compliant to marine legislation?

18. Are you aware of any penalties currently in place that law enforcement agencies could apply to deter organisations from not complying to marine legislation? What is the potential impact of non-compliance to marine legislation on the Algoa Bay Region?

19. In your opinion, does non-compliance to marine legislation play a part in the pollution of the ocean? If so, what would you regard the degree that non-compliance contributes to pollution of the ocean?

20. What is the role of management, in ensuring compliance to marine legislation and how does management view and drive compliance?

21. If staff of your organisations are found in contravention of regulatory requirements, are there disciplinary consequences for such behaviour?

22. What do you regard as the major challenges faced by your organisation in the Algoa Bay Region that prevent them from complying to marine legislation?

THEME 5: INCENTIVISATION AND REWARDING OF BEHAVIOUR

Objective for theme:

To assess what incentive would encourage compliance and what type of incentive would be adequate enough to replace the benefit of non-compliance to a company.

23. Would monetary or other forms of incentivisation (rewarding) of good behaviour encourage compliance to marine legislation?

24. If your answer to question 23 is yes, what would you regard as an effective incentive/reward to encourage compliance with the marine legislation and other regulatory requirements?

INTERVIEW GUIDELINES

STEP 1 – PRE-INTERVIEW PREPARATION

What are the research objectives for the study? Are they aligned with your questions in the interview guide?

A) Primary Research Objective

To design a strategy for the implementation of a corporate governance framework to encourage compliance to coastal and marine legislation.

B) Secondary objectives

To conceptualise corporate governance, and related pronouncements, in relation to the oceans economy in South Africa;

To identify and contextualise coastal and marine legislation (including international agreements) relating to the oceans economy in the Algoa Bay region;

To define and contextualise environmental management; environment management systems; and the role and responsibilities of corporate management in relation to marine and coastal governance practices;

To identify and contextualise role-players of organisations operating in the Algoa Bay region;

To identify and contextualise areas of non-compliance to marine legislation in the Algoa Bay region;

To define and explain the potential environmental impact/s resulting from non-compliance to marine legislation (poor corporate governance).

APPENDIX C: REH Approval letter



PO Box 77000, Nelson Mandela University, Port Elizabeth, 6031, South Africa mandela.ac.za

Chairperson: Faculty Research Ethics Committee (Human)
Tel: +27 (0)41 504 2906

Ref: [H21-BES-ACC-031] / Approval]

3 May 2021

Prof H Fourie
Department: Accounting

Dear Prof Houdini,

TITLE OF STUDY: ENVIRONMENTAL LEGISLATION COMPLIANCE: A STRATEGY TO IMPLEMENT A GOVERNANCE FRAMEWORK IN ALGOA BAY (MASTERS)

PRP: Prof H Fourie
PI: A Govender

Your above-entitled application served at the *Faculty Ethics Committee of the Faculty of Business and Economic Science, (19 March 2021)* for approval. The study is classified as a negligible/low risk study. The ethics clearance reference number is **H21-BES-ACC-031** and approval is subject to the following conditions:

1. The immediate completion and return of the attached acknowledgement to Lindie@mandela.ac.za, the date of receipt of such returned acknowledgement determining the final date of approval for the study where after data collection may commence.
2. Approval for data collection is for 1 calendar year from date of receipt of above mentioned acknowledgement.
3. The submission of an annual progress report by the PRP on the data collection activities of the study (form RECH-004 to be made available shortly on Research Ethics Committee (Human) portal) by 15 December this year for studies approved/extended in the period October of the previous year up to and including September of this year, or 15 December next year for studies approved/extended after September this year.
4. In the event of a requirement to extend the period of data collection (i.e. for a period in excess of 1 calendar year from date of approval), completion of an extension request is required (form RECH-005 to be made available shortly on Research Ethics Committee (Human) portal)
5. In the event of any changes made to the study (excluding extension of the study), completion of an amendments form is required (form RECH-006 to be made available shortly on Research Ethics Committee (Human) portal).
6. In the event of any changes made to the study (excluding extension of the study), RECH will have to approve such amendments and completion of an amendments form is required PRIOR to implementation (form RECH-006 available on Research Ethics Committee (Human) portal).
7. Immediate submission (and possible discontinuation of the study in the case of serious events) of the relevant report to RECH (form RECH-007 to be made available shortly on Research Ethics Committee (Human) portal) in the event of any unanticipated problems, serious incidents or adverse events observed during the course of the study.
8. Immediate submission of a Study Termination Report to RECH (form RECH-008 to be made available shortly on Research Ethics Committee (Human) portal) upon unexpected closure/termination of study.
9. Immediate submission of a Study Exception Report of RECH (form RECH-009 to be made available shortly on Research Ethics Committee (Human) portal) in the event of any study deviations, violations and/or exceptions.
10. Acknowledgement that the study could be subjected to passive and/or active monitoring without prior notice at the discretion of Research Ethics Committee (Human).

Please quote the ethics clearance reference number in all correspondence and enquiries related to the study. For speedy processing of email queries (to be directed to Lindie@mandela.ac.za), it is recommended that the ethics clearance reference number together with an indication of the query appear in the subject line of the email.

We wish you well with the study.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S Mago', followed by a vertical line.

Prof S Mago

Cc: Department of Research Capacity Development
Faculty Research Co-ordinator: Lindie van Rensburg

ACKNOWLEDGEMENT OF CONDITIONS FOR ETHICS APPROVAL
--

I, Prof H Fourie (PRP) of the study ENVIRONMENTAL LEGISLATION COMPLIANCE: A STRATEGY TO IMPLEMENT A GOVERNANCE FRAMEWORK IN ALGOA BAY (MASTERS) (H21-BES-ACC-031), do hereby agree to the following approval conditions:

1. The submission of an annual progress report by myself on the data collection activities of the study by 15 December this year for studies approved in the period October of the previous year up to and including September of this year, or 15 December next year for studies approved after September this year. It is noted that there will be no call for the submission thereof. The onus for submission of the annual report by the stipulated date rests on myself.
2. Submission of the relevant request to Faculty RECH in the event of any amendments to the study for approval by Faculty RECH prior to any partial or full implementation thereof.
3. Submission of the relevant request to Faculty RECH in the event of any extension to the study for approval by Faculty RECH prior to the implementation thereof.
4. Immediate submission of the relevant report to Faculty RECH in the event of any unanticipated problems, serious incidents or adverse events.
5. Immediate discontinuation of the study in the event of any serious unanticipated problems, serious incidents or serious adverse events.
6. Immediate submission of the relevant report to Faculty RECH in the event of the unexpected closure/discontinuation of the study (for example, de-registration of the PI).
7. Immediate submission of the relevant report to Faculty RECH in the event of study deviations, violations and/or exceptions.
8. Acknowledgement that the study could be subjected to passive and/or active monitoring without prior notice at the discretion of Faculty RECH.

Signed:  _____

Date: 03 May 2021 _____

APPENDIX D:
Interview consent form



Faculty of Business and Economic Sciences
Interview Consent Form

Principle Investigator (PI):	ANDREA GOVENDER
Department of PI:	DEPARTMENT OF ACCOUNTING SCIENCES
Title of Research Project:	ENVIRONMENTAL LEGISLATION COMPLIANCE: A STRATEGY TO IMPLEMENT A GOVERNANCE FRAMEWORK IN ALGOA BAY
Registered Degree:	MCOM IN ACCOUNTING
Staff or Student Number:	221401148
Primary Responsible Person (PRP):	PROFESSOR H. FOURIE

You are invited to participate in this research project aimed at implementing a governance framework in the Algoa Bay Region to enhance compliance to marine legislation.

The interview will take approximately 30 minutes. There are no anticipated risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time.

Thank you for agreeing to be interviewed as part of the above research project. Ethical procedures for academic research undertaken from Nelson Mandela University require that interviewees explicitly agree to being interviewed and how the information contained in their interview will be used. This consent form is necessary to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. By signing this form I agree that;

1. I agree to participate in a research project entitled: **Environmental legislation compliance: A strategy to implement a governance framework in Algoa Bay**, conducted by Ms Andrea Govender (Principal investigator) from the Nelson Mandela University.
2. I have received sufficient information about this research project and understand my role in it. The purpose of my participation as an interviewee in this research project and the future processing of my personal data has been explained to me and is clear.
3. My participation as an interviewee in this research project is completely voluntary. There is no explicit or implicit coercion whatsoever to participate.

NELSON MANDELA
UNIVERSITY

4. Participation involves being interviewed by the principal investigator from Nelson Mandela University. The interview will last approximately 30 minutes. I allow the Principal investigator to take notes during the interview. I also may allow the recording of the interview and subsequent dialogue by audio/video tape. It is clear to me that in case I do not want the interview and dialogue to be taped I am fully entitled to withdraw from participation.
5. I have the right not to answer questions. If I feel uncomfortable in any way during the interview session, I have the right to withdraw from the interview and ask that the data collected prior to the withdrawal will be deleted.
6. I have been given the explicit guarantee that the researcher will not identify me by name or function in any reports using information obtained from this interview, that my confidentiality as a participant in this study remains secure. Personal data will be processed in full compliance with the Nelson Mandela University Ethics Policy.
7. I was assured that this research project has been reviewed and approved by **Nelson Mandela University Research Ethics Committee (Human)**.
8. I have carefully read and fully understood the points and statements of this form. All my questions were answered to my satisfaction, and I voluntarily agree to participate in this study.
9. I obtained a copy of this consent form co-signed by the interviewer.
10. There are no financial benefits whatsoever expected from my participation in this research project.

Participant's Signature Date:

Researcher's Signature Date:

For further information, please contact: Prof. H Fourie - Research Supervisor (+27 41 504 2904)

APPENDIX E: Turnitin report

MCom Andrea

ORIGINALITY REPORT

6%

SIMILARITY INDEX

4%

INTERNET SOURCES

2%

PUBLICATIONS

3%

STUDENT PAPERS

PRIMARY SOURCES

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