

https://dspace.org/

Evaluation of the biodiversity reporting in the South African fishing industry

Usher, Kieran Michael

2017

https://hdl.handle.net/10539/24399

Usher, Kieran Michael (2017) Evaluation of the biodiversity reporting in the South African fishing industry, University of the Witwatersrand, Johannesburg, <https://hdl.handle.net/10539/24399>

Downloaded from a DSpace repository. https://dspace.org/

Evaluation of the biodiversity reporting in the South African fishing industry

---

A research report submitted by

Kieran Usher

Student Number: 595874

Ethics Clearance number : ACCN CACCN/1106

Email: 595874@students.wits.ac.za

Date Submitted: 1 October 2017

In partial fulfilment of the requirements for the degree of

Master of Commerce

University of the Witwatersrand

ABSTRACT

Biodiversity is a serious concern for companies using natural resources in their operations and should be examined closely in order to assess how these companies are reporting their biodiversity related impacts.

This thesis evaluates the biodiversity disclosures reported by companies in the South African fishing industry. The integrated and sustainability reports of these companies were examined over a three year period for the quantity and quality of their biodiversity related disclosures. This involved the examination of the extent, location, and quality of such disclosures by South African fishing companies.

The thesis finds that there is a distinct lack of biodiversity-related disclosures in the South African fishing industry. This thesis highlights the operation of organised hypocrisy in an industry which relies on the availability of natural resources and the state of biodiversity in order to continue its operations. It was found that a possible reason for limited biodiversity disclosures by South African fishing companies was to avoid public scrutiny of their biodiversity impact. The thesis contributes to the evaluation of a country, and more specifically an industry, that is heavily reliant on the state of biodiversity.

DECLARATION

I hereby declare that this research report is my own unaided work. It is submitted in partial fulfilment of the degree of Master of Commerce by Coursework and Research Report at the University of the Witwatersrand, Johannesburg. It has not been submitted elsewhere for the purpose of being awarded another degree or for the examination purposes at any other university.

Signature:

_____

Kieran Usher

1 October 2017

Table of Contents

1. Introduction 1
    1.1. Purpose and context of this study 1
    1.2. Research question 2
    1.3. Significance of the study 3
    1.4. Assumptions, limitations, and delimitations 4
    1.5. Definition of terms 5
2. Prior literature 6
    2.1. Non-Governmental Organisations 7
    2.2. Theoretical framework: organised hypocrisy 10
    2.3. Integrated and sustainability reporting 12
    2.4. Biodiversity reporting 15
        2.4.1. Prior literature 15
        2.4.2. Construction of the data collection instrument 18
        2.4.3. Table 2: disclosure matrix 19
3. Methodology 21
    3.1. Overview of method 21
    3.2. Population and study sample 22
    3.3. Measuring the quantity of disclosures 24
    3.4. Measuring the quality of disclosures 25
        3.4.1. Stand-alone reporting indicator 26
        3.4.2. Biodiversity reporting index 27
        3.4.3. Disclosure statement indicator 28
        3.4.4. Assurance of information indicator 29
    3.5. Analysis 32
4. Results 33
    4.1. Quantitative results 33
        4.1.1. Figure 1: Total biodiversity disclosures (Integrated reports) 33
        4.1.2. Figure 2: Total biodiversity disclosures (Sustainability reports) 33
    4.2. Qualitative results 34
        4.2.1. Stand-alone reporting indicator 35
        4.2.2. Biodiversity reporting index 36
        4.2.3. Disclosure statement indicator 38
        4.2.4. Assurance of information indicator 39
5. Discussion 41
    5.1. Biodiversity disclosures per disclosure theme 41
        5.1.1. Scene-setting disclosures 41

5.1.2. Species-related disclosures....44
5.1.3. Social engagement disclosures....45
5.1.4. Stakeholder engagement disclosures....47
5.1.5. Performance evaluation disclosure....50
5.1.6. Risk disclosures....53
5.1.7. Internal management disclosures....54
5.1.8. External reports disclosures....56
6. Discussion and conclusion....58
6.1. Analysis....58
6.2. Recommendations....60
6.3. Limitations and future research....61
7. Appendix....63
8. REFERENCES....64

List of tables and figures

Table	Description
Table 1	Abbreviations used in this report
Table 2	Disclosure matrix
Table 3	Sample of companies
Table 4	List of integrated and sustainability reports analysed
Table 5	Michelon disclosure statements
Table 6	Qualitative indicators
Figure 1	Total biodiversity disclosures (Integrated Reports)
Figure 2	Total biodiversity disclosures (Sustainability Reports)
Table 7	Stand-alone reporting indicator
Table 8	Biodiversity reporting index
Table 9	Qualitative sections of integrated reports
Table 10	Qualitative sections of sustainability reports
Table 11	Disclosure statements
Table 12	Disclosure statement scores
Table 13	Assurance of information
Table 14	Disclosure collection template

1. Introduction

1.1. Purpose and context of this study

The world faces a number of serious environmental threats such as pollution, global warming, deforestation and mass extinction of species (Vitousek, 1994; World Wild Life, 2017). Of particular concern for the purpose of this research is the loss of biodiversity and the effect which this has on society (Jones and Solomon, 2013). If ecosystems were to be destroyed further, the health impact, loss of food and supply of water will be severe (World Health Organization., 2016; WWF, 2016).

A specific concern to companies which rely on natural resources is the effect of their operations on biodiversity, because of public scrutiny the overconsumption of resources and the possibility of operational issues if natural resources are depleted, is being highlighted frequently (Henriques and Sadorsky, 1996; Lindemann-Matthies and Bose, 2008). According to several academics, the key to managing the loss of biodiversity is to develop society's understanding of the world's reliance on and consumption of natural resources (Thomas and Twyman, 2005; Jones and Solomon, 2013).

A fundamental natural resource under severe pressure is the world's fish stocks. A concern arises about the consumption, depletion and, more importantly, the replacement of these resources (Dasgupta and Heal, 1974; Jackson et al., 2001; Worm et al., 2009). An estimated 1.2 billion people rely on the consumption of fish as their source of daily protein (Planet Earth Herald., 2016b). Scientists have predicted that there may be no fish left in the ocean by 2050 (Planet Earth Herald., 2016a). The cause of this over-fishing of these species in order to meet an ever-growing demand for fish as the world's population increases. If the companies responsible for the depletion of these natural fish resources do not start taking biodiversity seriously, the world may face a momentous problem in the near future (Myers and Worm, 2003). As a result, the biodiversity impact of these organisations is an important topic which needs to

be examined to determine whether large organisations are controlling their use of natural fish resources or not.

Because fish companies require a steady supply of fish in order to meet customer demands, it is crucial that stakeholders are aware of these companies' consumption and subsequently their attempts at the conservation of fish species through methods such as sustainable fishing practices and fisheries management (Myers and Worm, 2003; The International Integrated Reporting Council., 2015). In order to secure stakeholders' confidence in fishing organisations, these companies needed to show that they are, in fact, attempting to conserve the supply of fish in the oceans for future generations.

A study performed by Samkin et al. (2014) made a deep ecological and anthropocentric case for biodiversity by examining the progress over various years on the reporting of such issues. Reporting on biodiversity is both an ethical imperative and a method for allowing stakeholders to assess organisations' sustainability performance and conclude on their whether or not to the support the firms. As a result, biodiversity is an important topic to be examined as companies and, equally, all of their stakeholders rely on the state of biodiversity in order for these companies to continue operating in the future (Samkin et al., 2014; Atkins et al., 2016).

1.2. Research question

This research focuses on the fact that South African companies in the fish industry require natural fish resources in their operations (Ponte, 2008). The extent of biodiversity disclosures in the South African fishing industry needed to be closely scrutinised in order to determine whether sufficient attention is being paid to the consumption of natural fish resources. This involved assessing the quantity and quality of biodiversity disclosures reported by South African fishing companies. Due to media and public attention being directed at natural resource-consuming industries, it was important to examine whether or not companies in the South African fish companies disclosed to stakeholders that they are concerned about their impact on biodiversity.

In this context, the purpose of this thesis is to examine the quantity and quality of biodiversity disclosures of companies in the South African fishing industry from 2013 to 2015 as presented in their integrated and sustainability reports.

1.3. Significance of the study

Samkin et al. (2014) make an ethical and business case for biodiversity reporting. The planet is in trouble and we need to know what companies are doing about it. The quality of biodiversity disclosures presented by organisations involved in environmental operations has been widely debated in recent years (Michelon et al., 2015). There seems to be a lack of completeness, relevance and credibility with regards to the information disclosed by organisations consuming natural resources (Husillos et al., 2011). For this reason, it was important to examine the quality of biodiversity disclosures to determine if disclosures are used to convey an image of environmental consciousness without actual improvement to the companies' biodiversity impact (Hopwood, 2009; Chen and Roberts, 2010; Jones and Solomon, 2013).

Biodiversity reporting is an emerging element of non-financial reporting and there is little research examining what companies are disclosing (Jones and Solomon, 2013; Mansoor and Maroun, 2016). Although companies might portray a respectable environmental imagine, studies on the extent and quality of biodiversity disclosures have rarely been performed (Grabsch et al., 2012).

Research performed by Rimmel and Jonäll (2013), van Liempd and Busch (2013) and Samkin et al. (2014) provide a framework for measuring biodiversity disclosures and assessing whether or not disclosures were addressed adequately in relation to the company's operations. The results indicated that this framework was a useful guide in assessing the performance of biodiversity actions by environmentally impacted companies (Samkin et al., 2014).

There has been limited research performed on biodiversity reporting in South Africa, but these studies provide a basis for examining biodiversity disclosures by South African companies with a heavy environmental impact. Due to the fact that South Africa is "one of the most biologically diverse countries in the world", according to South African National Biodiversity Institute (2014),

there was a need to highlight the adequacy of biodiversity disclosures in a South African context. Furthermore, the South African Fishing & Farming sector relies exclusively on the consumption of natural resources. It is important to analyse this industry's biodiversity reporting as fish resources are being depleted in a country which heavily relies on this crucial resource in order to continue business in the future (Planet Earth Herald., 2016a).

A paper written by Mansoor and Maroun (2016) explored the biodiversity disclosures of Johannesburg Securities Exchange (JSE) listed companies in two industries, namely the mining and food sectors. The study revealed a distinct lack in the transparency of biodiversity disclosures in these sectors. Furthermore, when companies did disclose biodiversity-related issues, it was often vague and avoided their negative biodiversity risks (Raemaekers and Maroun, 2014; Mansoor and Maroun, 2016). However, their study did not examine the interaction between the quality and quantity of biodiversity disclosures. So, this research complements the work by Mansoor and Maroun (2016) by examining biodiversity disclosures in the South African fishing industry and examines the relationship between the quantity and quality of such disclosures.

This research makes a practical contribution by providing insights into what biodiversity impacts have been disclosed in a South Africa fishing industry context and indicates weaknesses which can be taken into account by practitioners in the field of biodiversity disclosures. Because of the mounting global pressures to enhance biodiversity related disclosures, it is important to highlight an industry which relies solely on the future of biodiversity in order to continue its operations.

1.4. Assumptions, limitations, and delimitations

- The study focuses only on the disclosures in the integrated and sustainability reports of companies in the South African fishing industry (Berthelot et al., 2012; The International Integrated Reporting Council., 2013). This is because other forms of information, such as media articles, company websites and broadcasted statements might not represent an accurate reflection of the company's biodiversity views (Guthrie and Parker, 1989).

- The study only examined biodiversity disclosures of JSE-listed companies in the South African fishing industry. It is only necessary for JSE-listed companies to comply with King-III, which states these listed companies are required to prepare an annual integrated report[1] (Institute of Directors South Africa, 2013; Johannesburg Stock Exchange., 2015). This limitation was set because non-listed companies cannot be examined since they are not obliged to prepare an integrated report and so only restricted information could be collected from these companies.
- This study relies purely on an interpretive analysis of integrated and sustainability reports of the companies in the South African fishing industry. The perceived usefulness of information by stakeholders has not been examined. Furthermore, no direct engagement with stakeholder groups has been performed.
- A limitation of the use of an exploratory research method is the fact that it could lead to wrong decisions due to the judgemental nature during the interpretation of findings. This is further enhanced by the fact that qualitative results are gathered from this research method and, therefore, interpreter bias is possible (Schutt, 2014).

1.5. Definition of terms

- *Biodiversity:* the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (Global Reporting Initiative., 2007, p. 11).

- *Organised hypocrisy:* the term which explains that companies and individuals state they are in agreement with one another, but they continue to pursue their own interests (Krasner, 1999).

[1] King-III states that listed companies must comply in preparing an integrated report or explain the reasons for the failure to comply (Institute of Directors South Africa, 2013). Note that King-IV was only issued in late 2016 and is not applicable for the companies under review.

Table 1: Abbreviations used in this report

Abbreviation	Explanation
DAFF	Department of Agriculture, Forestry and Fisheries
FRAP	Fishing Rights Allocation Process
GRI	Global Reporting Initiative
IIRC	International Integrated Reporting Council
JSE	Johannesburg Securities Exchange
Ltd	Limited
MSC	Marine Stewardship Council
NGO	Non-Governmental Organisation
SANBI	South Africa National Biodiversity Institute
SASSI	Southern African Sustainable Seafood Initiative
TAC	Total Allowable Catch
WWF	World Wildlife Fund

2. Prior literature

There is a great diversity of sea life within the South African oceans. However, the current state of their continued existence is in doubt because of the overfishing of the South African oceans (Brookbanks, 2012). The effects of overfishing will be felt in the South African ecosystem and by the people who rely on the supply of fish on a daily basis (Planet Earth Herald., 2016a). Furthermore, unsustainable management of the oceans' biodiversity impacts the economy of South Africa as fishing companies will fail to provide enough fish to satisfy the demands of the country (Brookbanks, 2012).

As a result, there are concerns about the sustainability of South Africa's fisheries (Department of Agriculture Forestry and Fisheries, 2014). Responsible fisheries management is crucial in order to maintain the sustainability of these natural fish resources. Biodiversity of the South African oceans is a key element which drives the economy of the country and so this needs to

be carefully monitored to ensure its future existence (Brookbanks, 2012). Because of the high levels of biodiversity in the South African oceans, it is vital to protect the country's state of biodiversity which can primarily be achieved through consumer awareness and sustainable fishing practices (Petersen, 2016).

As discussed in Section 1.1, biodiversity is becoming a more important aspect of corporate reporting. Stakeholders are requiring information about how companies are impacting the environment around them (Samkin et al., 2014). Natural resource-consuming companies need to align their business activities with their environmental impact as this is an important aspect in which stakeholders decide whether they wish to stay involved with such a company (Atkins et al., 2016). Such companies need to be held accountable for their interactions with the environment and, therefore, the introduction of biodiversity reporting amplifies the awareness of companies' activities and their effect on the environment.

2.1. Non-Governmental Organisations

Non-Governmental Organisations (NGO) play a crucial role in regulating companies through the impact of their business activities on the environment (NGO, 2017). NGO's fulfil an important function in maintaining biodiversity levels, which is vital for future generations to enjoy. An NGO's function is to serve the common interest without being concerned about profit. This allows for an unbiased drive to achieve a goal which is beneficial to society as a whole (NGO, 2017). The applicable NGO's in the South African fishing industry are: the Department of Agriculture, Forestry and Fisheries (DAFF), the Marine Stewardship Council (MSC), the South African National Biodiversity Institute (SANBI), and World Wildlife Fund (WWF) South Africa. Each is discussed in more detail below.

DAFF

The DAFF was formed in 2009 with a mission to oversee and support the agricultural, forestry and fishery sectors through sustainable policies and programmes. They ensure food security across various aspects of South Africa in order to implement sustainable uses of natural resources in each sector. In specific relation to the fishing sector of the DAFF, they assist in

aquaculture and economic development through the monitoring of sustainable fishing practices of these natural resources. The DAFF offers advice on sustainable utilisation of fish resources and advice on how to conserve marine ecosystems for future generations. An important aspect of their operations is the allocation and monitoring of fishing rights to companies in the South African fishing industry. Their major projects with regards to conserving fish resources in South Africa involve enforcing the Fishing Rights Allocation Process (FRAP) which regulates the way in which fish companies in the country consume these natural resources (Department of Agriculture Forestry and Fisheries, 2017).

MSC

The MSC has been in existence since 1997 and has a strong influence in the fishing industry. The MSC attempts to address the problem of unsustainable fishing practices and encourages the safeguarding of seafood supplies for future years. Through certifications and seafood labelling, they promote sustainable fishing practices and the subsequent consumption of seafood. The level of fish resources available, and the ocean as a whole, is of great concern to the MSC and so strives to ensure that companies and consumers are making wise choices when it comes to seafood. The MSC attempts to align the needs of businesses and humans in order to achieve a long-lasting supply of fish in the oceans. A project developed by the MSC includes labelling food items which contain fish in order to make consumers aware of the fish species used in the product and whether certain fish are in danger of overfishing (Marine Stewardship Council, 2015).

SANBI

The SANBI was formed in 1996 with a mission statement to challenge and improve the biodiversity levels of South Africa, a country which the organisation recognises as rich in biodiversity throughout its environmental landscape. The SANBI conducts biodiversity research and subsequently monitors the biodiversity levels in South Africa. They provide advice and plans to organisations impacting biodiversity in South Africa to help ensure that the current state of biodiversity can be maintained or improved for future generations. SANBI is concerned with

ecosystem restoration and rehabilitation in order to curb the effects of natural resource consuming organisations on biodiversity. The institution attempts to educate communities about their impact on biodiversity and how to protect South Africa's rich biodiversity landscape. Projects developed by the SANBI are predominantly based on empowering South Africans' knowledge of biodiversity issues and finding methods to protect biodiversity in the country (South African National Biodiversity Institute., 2017).

WWF

The WWF is one of the longest standing environmental organisations, having been formed in 1961. WWF South Africa's mission is to support and fund various projects aimed at improving the environmental situation in South Africa. Their core goals are to conserve the biodiversity of South Africa and ensure the sustainable development of its ecosystems. Through sustainable environmental practices, they assist in improving communities which are dependent on natural resources, in order to conserve biodiversity of society's future. WWF South Africa protects biodiversity and natural resources by encouraging companies and individuals to be more environmentally responsible in their actions. The social and economic progress of South Africa is equally important to WWF as these aspects too affect the environmental footprint of the country. In order to maintain the level of biodiversity for future generations, businesses and humans need to work together in following environmentally friendly practices. The fish related projects entered into by the WWF South Africa involves ensuring healthy oceans for fish species to live and survive within (WWF South Africa, 2017).

In addition to the role played by NGO's in holding companies accountable for their sustainability performance, the prior research suggests that sustainability reporting is also an important mechanism of accountability (Brennan & Merkl-Davies, 2014; Carels et al., 2013). This is examined further in this section.

2.2. Theoretical framework: organised hypocrisy

In terms of an organised hypocrisy framework, companies are quick to demonstrate superficial compliance with laws and regulations by changing their corporate reports but they seldom follow this up with real action (Cho et al., 2015). Krasner (1999) reaches a similar conclusion, maintaining that companies are willing to meet all the necessary requirements to comply with regulators' demands but, when it comes to performance, they will still pursue their own interests. Critical researchers have argued that this is especially relevant when it comes to sustainability reporting.

There has been an emphasis on sustainability disclosures in recent years because of our ever-changing natural environment (Smith, 2013; Mannion, 2014). However, this greater emphasis on environmental 'talk' has not addressed the well documented ongoing environmental decline (Milne and Gray, 2013). This raised questions about whether or not companies with a high environmental impact simply comply with environmental-related disclosures without actually ensuring the sustainability of their operations (Lipson, 2007). The actions of these organisations do not seem to correspond with what they are declaring in their integrated or sustainability reports (Spar and La Mure, 2003; Malsch, 2013).

The purpose of sustainability disclosures is to make organisations accountable for, and more transparent about, their environmental impact (Bebbington et al., 2014). The issue with the implementation of sustainability is the fact that there is no accurate way of measuring whether or not companies actually follow up on their disclosures with responsible environment behaviour (Adams, 2004; Patten, 2012; Boiral, 2013). Companies obscure their sustainability reports by complying with environmental disclosures in a legalistic fashion while their actual environmental performance is poor (Cho et al., 2010).

Organised hypocrisy limits the action succeeding sustainability disclosures as companies are willing to comply with legislation requirements without being forced to implement any sustainable performance measures. Correspondingly, organisations frequently have no intention on engaging in this hypocrisy as it is often inherent in the culture of the industry to compete on

aspects that do not involve protecting the environment for future generations (Cho et al., 2015). The disclosure of environmental issues is still important as it will allow entities the opportunity to improve their environmental impact through potential solutions (Abrahamson and Baumard, 2008; Christensen et al., 2013). Therefore, the 'talk' regarding sustainability is sufficiently detailed but there needs to be a greater emphasis on the performance of sustainability actions in practice (Cho et al., 2015).

The theoretical framework is based on the supposed need for companies to disclose their environmental impact merely to maintain the public's confidence in their operations (Meyer and Rowan, 1977; Suchman, 1995). This applies in specific reference to natural resource-consuming companies as the question arises whether these companies are disclosing their environmental impact with the goal of restoring their legitimacy (Gray et al., 1995; Atkins and Maroun, 2015). A study explained by Deegan et al. (2002) shows that in response to negative public scrutiny, companies tend to increase reporting on their environmental impact. In turn, without the media coverage on environmental issues, a concern is present about whether these environmentally impacting companies would voluntarily disclose their own environmental reports.

It has been found that reporting on environmental issues does not improve the actual state of the environment as it merely appeals to stakeholders the positive aspects the company is performing in which avoids the possibility of further scrutiny (Higgins and Walker, 2012; Tregidga et al., 2014). The argument would then be for companies to disclose more accurately their environmental impact, however, the opposite holds true as they are unwilling to comply with added disclosures as it opens them up to additional examination by the public (De Villiers and van Staden, 2006; Solomon et al., 2013). Therefore, in order to keep their stakeholders satisfied, environmental-impacting companies often produce generic information which does not allow the media to locate any weaknesses in their environmental reports (Boiral, 2013; Cho et al., 2015).

2.3. Integrated and sustainability reporting

Integrated reporting provides a holistic view for shareholders regarding the overall operations of a specific company. The aim of an integrated report is to improve the quality of information presented in financial statements, enhance accountability and stewardship, and develop a greater mechanism for decision-making (The International Integrated Reporting Council., 2013).[2] The key purpose of integrated reporting is to make the public aware of how a company is creating value for all its stakeholders and how its operations impact the natural world (Atkins and Maroun, 2015; SAICA, 2015; McNally et al., 2017).

The integrated reporting mechanism was introduced to place a greater emphasis on non-financial information by integrating financial reporting with information on a company's environmental, social and governance aspects (Atkins and Maroun, 2015). The primary concern of integrated reports is to meet the needs of stakeholders and provide a balanced view on financial and non-financial measures of a company (Higgins and Walker, 2012; Tregidga et al., 2014; De Villiers et al., 2017). The International Integrated Reporting Council. (2013) suggests that these reports are the main form of communication with stakeholders and form an important part of the study.

Environmental issues are being included in companies integrated and sustainability reports because of the pressure from regulators to align financial and non-financial information into an annual report. The relevance of introducing integrated and sustainability reporting is enhancing value creation and accountability. These methods will allow for a comparison between companies' environmental impact year-on-year and stakeholders will be able to conclude on whether they wish to be involved with such companies (Global Reporting Initiative., 2013). Integrated and sustainability reports have attempted to legitimise companies' actions and, in turn, have created a combined emphasis on their environmental impact (Solomon and Maroun, 2012).

[2] The International Integrated Reporting Council (IIRC) is a global coalition with the aim of creating value through the evolution of corporate reporting.

From an integrated reporting perspective, it is important to demonstrate how natural resources are being transformed into financial and manufactured capital, and how great the risk of resource depletion on the ability of the fishing industry to generate sustainable returns is (see The International Integrated Reporting Council., 2013). As explained by King-III and the Global Reporting Index (GRI), an effective integrated report should provide stakeholders with an understanding of key environmental risks facing the company and strategies in place to mitigate the threat posed by the depletion of the world's fish resources (Global Reporting Initiative., 2007; Institute of Directors South Africa, 2013). This should form part of an integrated approach to biodiversity risk-management reporting.

Sustainability reports describe three common activities, namely economic, environmental and social. Reporting on these issues allows companies to be transparent with their stakeholders in respect to the sustainability impact of their operations (Global Reporting Initiative., 2007; Integrated Reporting South Africa, 2015). Results from a Canadian study indicate that investors value information presented in sustainability reports and so these reports are included in the analysis (Berthelot et al., 2012).

Research done by Des Jardins (2012) revealed that companies are prepared to incur penalties for their overuse of natural resources and so the main issue is the replenishment of these natural resources. Furthermore, a study concerning the consumption of natural resources shows that the world is using 30% more resources than is sustainable, including fish species. This indicates that fish companies, which rely on the use of natural resources, should be concerned about replacement as a requirement in order to continue business operations in the future (Jowit, 2008). Stewardship and accountability tie in further because concerned stakeholders should be informed of a company's biodiversity impact and should also be able to hold the management of those entities responsible for the consumption and replacement of natural resources (Earthwatch Institute, 2002).

As discussed in Section 1.4 and because the fish companies examined in this report are listed on the JSE, these companies have to comply with King-III which requires them to produce an

annual integrated report[3] (Institute of Directors South Africa, 2013; Johannesburg Stock Exchange., 2015). As part of this process, these companies need to include a discussion of how they are managing their environmental capital, key to which is the impact of their operations on biodiversity mass (Jones and Solomon, 2013).

The International Integrated Reporting Council (IIRC) has explored the various capitals which form the basis of a company's value creation. The following capitals were identified by the IIRC: financial, manufactured, intellectual, human, social and relationship, and natural. Capital can be enhanced through disclosures by the company, such as training information improves human capital, whereas making profit increases financial capital. However, the various capitals identified are dependent on each other and can strengthen or weaken the other components of capital while being disclosed by companies (International Integrated Reporting Council., 2013).

The capital applicable in the study of the South African fishing industry is natural capital as it is understood to involve natural resources and the environment to provide a flow of goods or services (Brand, 2009). Biodiversity is appropriate to discuss with natural capital as without the longevity of natural resources, the prosperity of a company's operations is questionable. The South African fishing industry fundamentally relies of the current and future availability of natural capital such as fish resources (International Integrated Reporting Council., 2013). Biodiversity is an important aspect which needs to be explored as accounting plays a crucial role in reporting on its current state.

Because biodiversity is a dominant factor which needs to be disclosed in companies' integrated and sustainability reports, it is imperative to determine which sections of these reports are viewed as more important or represent higher quality than others. A study performed by De Villiers and van Staden (2011) determined which sections of annual reports companies disclose their environmental information and, in turn, which sections indicate a higher quality of reporting. The findings of their study revealed that companies disclosing environmental risks and future costs

[3] As discussed above, King-III applies these principles on a comply or explain basis. Therefore JSE listed companies who fail to produce an integrated report are required to explain the reasons for the failure to explain (Institute of Directors South Africa, 2013).

in that regard depict higher quality information presented. Therefore, disclosures on biodiversity risks affecting the organisation and future costs of restoring biodiversity are the most important sections of annual reports in terms stakeholder preferences (De Villiers and van Staden, 2011). Disclosures in these themes represent higher quality information and it should be assessed whether companies in the South African fishing industry are applying this methodology in their biodiversity disclosures.

2.4. Biodiversity reporting

2.4.1. Prior literature

Beams and Fertig (1971) explain that accounting must take some form of responsibility with regards to its presentation of biodiversity. The misuse of natural resources could cause the economy to become unstable because of the impact on the future profits of companies (Raar, 2011). For many companies, the use of natural resources is a vital component in their business whether they use them as raw material to make other products, use them indirectly during the manufacturing process, or actually sell the natural resource (McKinsey & Company., 2011). Environmental reporting, especially biodiversity reporting, targets the accountability of natural resource-consuming companies to their various stakeholders (Atkins et al., 2016).

By reporting on biodiversity, companies communicate to the public their impact on biodiversity and the ways in which they plan to mitigate their negative effect. This form of accounting for biodiversity has made many advances during recent years through the introduction of integrated and sustainability reporting (Maroun, 2016). The change of these organisations' attitudes and behaviour is vital to control the loss of biodiversity (Jones and Solomon, 2013). With these disclosures, it has been found that there is a connection between business activity and the environment. These social accounting approaches have constructed new fields of visibility, as it shows ways in which companies can help the planet by reducing the decline of biodiversity (Jones and Solomon, 2013; Atkins et al., 2016).

The creation of codes of best practice (such as King-III and the GRI) emphasises the importance of prudential environmental management by modern corporations (Schultz, 2001). In turn, there

is more pressure on companies to present information on their interactions with the environment (Shah, 2002). Through the improvement in reporting on biodiversity related issues, natural resources and the ecosystem could be improved upon for future generations to enjoy (Maroun, 2016). For example, to gain the public's support, Patten (1995) demonstrated that environmental reporting is crucial for a business to be perceived as a "responsible corporate citizen". This shows that it is important for companies to reflect on their environmental and biodiversity footprint which should be included in their integrated reports (Rimmel and Jonäll, 2013). These disclosures should be communicated in such a way that the stakeholders and environmentalists understand the biodiversity effects and how companies are trying to mitigate their impact (Jones and Solomon, 2013).

Results from the prior research using a similar disclosure matrix, discussed in Section 2.4.2, indicate a low frequency of biodiversity reporting (Grabsch et al., 2012; Rimmel and Jonäll, 2013). Grabsch et al. (2012) focussed on biodiversity disclosures in a corporate reporting context and assessed companies' contribution to climate change and biodiversity impact. The study gauged the extent of biodiversity reporting in large companies and examined whether sufficient reporting on such matters was being made. The results show positive signs for action plans and NGO partnerships, but disclosures were lacking for risk themes and future biodiversity costs. This is worrying in terms of a study performed by De Villiers and van Staden (2011), which described disclosures on biodiversity risks and future costs in that regard to be very important and an indication of higher quality biodiversity disclosures. Rimmel and Jonäll (2013) found similar results depicting a lack of continuous biodiversity-related disclosures, but with the implementation of sustainability reporting, disclosures on such issues are expected to be greatly enhanced.

Following from these results, Jones and Solomon (2013) explain that there is an urgent need to address the loss of biodiversity and that the crucial mechanism to achieve this is through companies being held accountable for their biodiversity impact. When disclosures on biodiversity were located, they were often of a low quality (van Liempd and Busch, 2013). The results from these previous studies indicate a level of organised hypocrisy in biodiversity disclosures and

depict a worrying sign with regards to companies' not accounting for their biodiversity impacts. The communities biodiversity impacting companies are involved in are crucial to the implementation of improving biodiversity reporting and assisting to hold the relevant companies accountable for their operations (Atkins et al., 2016). To ensure effective action against the decline of biodiversity, accounting for its impact is an important step to conserving the planet for future generations (Jones and Solomon, 2013).

A number of recommended best practices for reporting on biodiversity have emerged in recent years. The most widely used biodiversity reporting mechanism is the GRI as it has been adopted by various organisations in order to present their environmental interactions. The GRI predominately focuses on climate change, human rights and corruption, but also includes other standards such as water conservation and biodiversity (Global Reporting Initiative., 2017). The specific GRI standard on biodiversity has many aspects relevant to this study as it sets out areas which are protected or of high biodiversity value and species or habitats which are under threat from biodiversity impacts (Global Reporting Initiative., 2016). This standard on biodiversity reporting provides important information to assess whether companies are disclosing their environmental impacts and how to improve.

Indirect frameworks in which biodiversity is presented are King-III and the IIRC. King-III assists in the examination of the environmental performance of companies, which includes the way in which they interact with biodiversity. The principles in King-III attempt to help companies prepare plans to manage their impact on biodiversity in order to continue their operations in such a field and for future generations to enjoy (Integrated Reporting & Assurance Services, 2012). Another important organisation promoting the issue of biodiversity is the IIRC in which they require companies to present information on how they are managing different forms of capital. The applicable capital in this study is natural capital which includes reporting on biodiversity. The IIRC requires biodiversity-impacting companies to report on habitats or species affected by their operations and on any attempts to restore damage (The International Integrated Reporting Council., 2013; Maroun, 2017).

An applicable sustainability reporting framework tailored to the South African fish industry is the Southern African Sustainable Seafood Initiative (SASSI). SASSI is the main organisation which attempts to encourage companies to support sustainable seafood management (SASSI, 2016). The SASSI organisation challenges companies and people to be aware of the fish species they consume which promotes a consciousness of conserving these natural resources. To date, only a handful of companies have supported SASSI by preparing progress reports on their sustainable fishing practices but more companies need to commit to these practices because this will lead to an overall increase in sustainability reporting. Partnering with an organisation such as SASSI and accounting for biodiversity issues plays an important role in the movement of the fishing industry towards sustainability reporting (Jones and Solomon, 2013; SASSI, 2015).

2.4.2. Construction of the data collection instrument

There is no generally accepted framework for reporting on biodiversity issues (Grabsch et al., 2012). Therefore, the main disclosure themes identified by prior literature on biodiversity reporting were used to construct a disclosure matrix and, subsequently, tailored to the South African fish industry (SASSI, 2015; Maroun, 2016; WWF, 2016).

Grabsch et al. (2012) identified the disclosure themes and these were adapted by van Liempd and Busch (2013). These prior research studies assisted in developing the disclosure matrix which divided biodiversity reporting into eight broad categories, namely, scene-setting, species related, social engagements, stakeholder engagements, performance evaluations, risk, internal management, external reports (Grabsch et al., 2012). Each of these themes is detailed in the disclosure matrix below, subsequent to the themes being tailored to the South African fishing industry. An explanation as to the expected location of each theme in a company's integrated report is described, as well as a discussion of the scoring system used in each theme.

2.4.3. Table 2: disclosure matrix

Axial theme	Explanation	Discussion
Scene-setting (policy)	Whether the company defines biodiversity directly or takes biodiversity into account when setting their mission statement or vision. Indication of the company being affiliated with the WWF-SASSI in their introduction paragraphs.	Scores assigned to the scene-setting theme are appropriate if the companies explain what biodiversity is or implied as to what the meaning of biodiversity is in the fishing industry. The key disclosure is sustainable seafood for future generations.
Species related (policy)	Reporting on regions or fish species which are under threat. Mention made of the SASSI List when discussing their produce.	Companies need to explain that fish species under their operations are under threat of overfishing. This is generally best described through the SASSI List.
Social engagements (action)	Disclosure of partnerships with biodiversity organisations or NGO's, such as the DAFF, the MSC, SANBI, and WWF South Africa. Disclosures of projects and initiatives involved in relation to fish species conservation.	Disclosures of projects or partnerships with NGO's warrant a score. Specific details of the projects or partnerships do not need to be disclosed in the companies' reports.
Stakeholder engagements (action)	Engagement with communities in order to promote awareness around biodiversity issues. Furthermore, any possible forms of interaction with stakeholders through social media regarding biodiversity. An indication of training employees in fish conservation and biodiversity related issues.	The key to this disclosure theme is the training of employees in sustainable seafood practices. Initiatives with stakeholders or communities with regards to biodiversity issues, warrant inclusion. Engaging with stakeholders in specific, detailed projects is crucial to this theme.
Performance evaluations (action)	Reporting on future biodiversity targets set by companies and rehabilitation costs relating to the restoration of their biodiversity-related impact. Participation progress reports from the WWF-SASSI are applicable and any internal targets the company set.	Targets set by fish companies need to be explained and appropriate updates followed in subsequent years. Vague targets do not warrant a score. WWF-SASSI participation progress reports are also considered to be a score. Discussions surrounding future rehabilitation

Axial theme	Explanation	Discussion
		costs warrant an inclusion on the performance evaluation theme.
Risk (policy)	Disclosing biodiversity as one on the company's material risks. Explaining to stakeholders whether the company is facing risks regarding the overconsumption of their fish produce and ways they are managing these risks. Research into methods to reduce their impact on biodiversity.	Biodiversity, overconsumption of fish species, and the lack of fish for future generations need to be listed as a key risk for the company. No vague, general environmental risks are considered.
Internal management (action)	Information relating to a plan or officer to address biodiversity concerns which stakeholders might have. Contact details for stakeholders to enquire directly about seafood sustainability in their business.	Specific information on a plan relating to biodiversity or sustainable seafood needs to be disclosed. Sustainability forums or teams also warrant a score.
External reports (policy)	Reference to a biodiversity disclosure framework, such as the GRI. In participation, or in the process of being a participant, of SASSI.	The mere reference to a biodiversity framework is sufficient for an inclusion in the external reports policy theme.

Adapted from (Global Reporting Initiative., 2007; Grabsch et al., 2012; Jones and Solomon, 2013; SASSI, 2015; Mansoor, 2016; Mansoor and Maroun, 2016; Maroun, 2016; WWF, 2016).

The disclosure matrix was used as a thematic analysis tool, as discussed in Section 2, to evaluate the extent and quality of biodiversity reporting disclosures in the South African fish industry from 2013 to 2015 (van Liempd and Busch, 2013).

3. Methodology

3.1. Overview of method

An exploratory content analysis is used is examine the quality and quantity of biodiversity reporting by the South African seafood industry. The method is inspired by an interpretive tradition because of the limited research on biodiversity reporting in South Africa and the absence of any generally accepted framework for defining biodiversity reporting (Shields and Rangarajan, 2013; Maroun and Jonker, 2014). This method allowed for the determination of the best research design, data-collection method evidenced in Section 2.4.3 above, and the selection of an appropriate sample. Furthermore, the social aspect of this topic allowed for an analysis of the issues present in the sample and the subsequent actions, or lack thereof, by companies with regard to the concerns present in the industry (Maroun, 2012a; Schutt, 2014). This research was conducted from a social constructive perspective and is based on an interpretive data collection and analysis process. An interpretive research approach is subjective and allows for informed opinions to be made on the subject under consideration (Maroun, 2012b). In specific relation to biodiversity in the fish industry, a thematic content analysis was used, involving the search for certain common identified themes with the aim of determining possible trends and patterns (Steenkamp and Northcott, 2007; Samkin et al., 2014). South Africa is known as one of the most biologically diverse countries in the world. It has an abundance of marine life which has made the South African fishing industry a suitable jurisdiction in which to conduct this research (Government Communications, 2012; South African National Biodiversity Institute, 2014).

The themes in Table 2 (Section 2.4.3) were used as a disclosure checklist in order to compare biodiversity disclosures across various themes and subsequently to examine the reporting trends of companies in the fish industry. The method involved a search for common biodiversity-related terms and grouping of disclosures per theme by the researcher (Grabsch et al., 2012). This was carried out using the method adapted from van Liempd and Busch (2013) in

conjunction with the GRI's (2007) definition of 'biodiversity' to identify key genetic and eco-systemic biodiversity disclosures.[4]

A pilot test was performed in order to check for the completeness of the disclosure matrix to determine whether any additional themes needed to be added to the analysis. This should not be seen as a threat to validity and reliability as the possibility to determine whether additional themes allowed for a greater application of the research in terms of a South African context in comparison to the international disclosure themes determined by Grabsch et al. (2012).

Additional themes were not included in the study during the analysis of the data as the scores predominately matched the disclosure framework set before the analysis begun. Because no additional themes were located, there is assurance over the completeness of the disclosure matrix used in the study. The discussion of the original themes was expanded during the analysis as each of the themes set out attracted further discussion points which required inclusion. An example of this was evidenced in the risk theme. During the collection of the data, additional points were added to this theme in order to ensure the completeness of the matrix. Specifically, research into methods to reduce biodiversity impacts was subsequently added to the risk theme as it indicates a concern of the South African fishing industry with regards to future biodiversity risks.

3.2. Population and study sample

There are a number of listed companies in the Farming & Food sector of the JSE but this study limited the sample to South African fishing companies. The integrated and sustainability reports of all eight fishing companies listed in the Farming & Fishing sector of the JSE in the years 2013 to 2015 were examined. The South African fish companies are split into two categories; harvesters and distributors. The following company's reports were thematically analysed:

[4] Assurance on the validity and reliability of results is provided by the use of this similar methodology to the ones applied by Grabsch et al. (2012) and van Liempd and Busch (2013).

Table 3: Sample of companies

Harvesters	Distributors
· Oceana Group Ltd	· Pick and Pay Stores Ltd
· AVI Ltd – specifically their I&J subsidiary	· The Spar Group Ltd
· Brimstone Corporations Ltd – specifically their Sea Harvest Corporation (Pty) Ltd subsidiary	· Woolworths Ltd · Massmart Holdings Limited

Table 4: List of integrated and sustainability reports analysed[5]

Name of Company	2013		2014		2015	
	Integrated report	Sustainability report	Integrated report	Sustainability report	Integrated report	Sustainability report
Oceana Group Ltd	ü	ü	ü	ü	ü	ü
AVI Ltd	ü	û	ü	û	ü	û
Brimstone Corporations Ltd	ü	û	ü	û	ü	û
Pick and Pay Stores Ltd	ü	ü	ü	û	ü	ü
The Spar Group Ltd	ü	û	ü	û	ü	û
Woolworths Ltd	ü	ü	ü	ü	ü	ü
Massmart Holdings Limited	ü	û	ü	û	ü	û

The reason for the small sample size is the relatively small number of South African fish harvesters and distributors. A point to note from AVI Ltd is that they only produced a separate sustainability report in 2015: it is included verbatim in their 2015 integrated report. For this reason, scores were assigned to AVI's integrated report in 2015 only as the company provided

[5] A number of companies in the South African fishing industry do not prepare separate sustainability reports. Furthermore, a handful of companies are inconsistent with the preparation of sustainability reports year-on-year.

investors with the same sustainability information in an online sustainability report. A further aspect to note is that Brimstone Corporations Ltd did not produce a separate sustainability report across the years, but they included the sustainability reports within their integrated reports only. Therefore, scores were only assigned to Brimstone's integrated reports. The scores assigned to the sustainability reports were lower in 2014 than in the other two years as Pick and Pay Stores Ltd failed to produce a sustainability report in 2014, as seen in Figure 2 below.

3.3. Measuring the quantity of disclosures

In order to determine the extent of these biodiversity disclosures within the themes, the companies' integrated and sustainability reports were searched for keywords (Grabsch et al., 2012). The process followed was to read the various reports, identify the keywords and subsequently place scores on the reports according to the relevant themes in Table 2. The following keywords were applicable in these reports:

- Biodiversity
- Conservation
- Fish
- Seafood
- Marine
- Maritime
- SASSI[6]
- The SASSI List
- WWF South Africa
- Total Allowable Catch (TAC)[7]
- DAFF
- MSC

[6] The Southern African Sustainable Seafood Initiative (SASSI) provides information, through the SASSI list, about certain fish species and their consumption (SASSI, 2016).
[7] Total Allowable Catch (TAC) is a catch limit set for commercial fish stocks (European Commission., 2015).

- South Africa National Biodiversity Institute

Each integrated and sustainability report was searched for the keywords and the appropriate theme subsequently determined.

A score of ‘0’ was given to themes that had no presence of biodiversity disclosures and a score of ‘1’ was given to themes in which there were biodiversity disclosures present (Mansoor and Maroun 2016). The data from the scores were organised into a frequency table to depict the extent of biodiversity disclosures by the companies in each of the relevant years (Leedy and Ormrod, 2013). The number and percentage of biodiversity disclosures were categorised for each theme and subsequently analysed for trends or patterns (Samkin et al., 2014). Descriptive statistics, such as the mean, were applied to the data in order to analyse it further and identify trends in the disclosures (Leedy and Ormrod, 2013). This was done in keeping with the interpretive nature of the study and the small sample sizes which negate the use of inferential statistics (Mansoor and Maroun, 2016). In order to ensure that all the detail in the various integrated reports was analysed, the location of where the scores were located was noted, which subsequently assisted in the analysis of the qualitative results. Repetition on the scores assigned to the themes and qualitative results were analysed and the most relevant evidence of biodiversity disclosures was noted as this provided the best analysis of the results.

Due to the fact that the researcher was involved in the data collection and analysis, there was a great deal of subjective judgement used to determine whether a keyword was included in a theme or not (Steenkamp and Northcott, 2007; Carels et al., 2013). However, this must not be seen as a weakness, as it offers a greater potential regarding the understanding of biodiversity disclosures (Steenkamp and Northcott, 2007).

3.4. Measuring the quality of disclosures

Michelon et al. (2015) considered various aspects in the way in which companies presented their environmental impacts. The study based the disclosures presented by companies in terms of the following environmental reporting indicators: the content of the information disclosed, the type of information included to describe environmental issues and the approach used to report

on environmental concerns. The indicators suggested by Michelon et al. (2015) were modified and applied to determine the quality of biodiversity disclosures presented by South African fish companies: stand-alone reporting, biodiversity reporting index, disclosure statements, and assurance of information.

3.4.1. Stand-alone reporting indicator

As discussed in Section 2.3, companies which prepare integrated and sustainability reports present information on their environmental impacts which is of vital importance to assess whether or not they are concerned about the state of biodiversity in the country (Integrated Reporting South Africa, 2015).

Firstly, the stand-alone reporting indicator assessed whether companies prepare a separate sustainability report or if this information is included in their annual/integrated report only. Preparing a separate sustainability report is an important form of communication with stakeholders as it presents potentially useful information on the company's interaction with the environment. As a result of this, companies which prepare a separate sustainability report in addition to their integrated report are seen as providing higher quality biodiversity reporting. Therefore, this indicator is scored, based on whether the South African fishing companies produce a sustainability report or not (Berthelot et al., 2012). A score of '1' was awarded when a sustainability report complemented an annual or integrated report. If no complementary sustainability report was prepared, a score of '0' was assigned.

Furthermore, a ratio comparison was made from the disclosures in the integrated report to the sustainability report. Scores are assigned to each type of report the South African fishing companies prepare. The scores were assigned based on Table 4 which shows each type of report prepared by the individual fishing companies. Ratios were subsequently formed to show the comparison between the integrated and sustainability reports prepared by the South African fishing industry. This ratio shows the number of disclosures presented in the integrated reports as compared to the biodiversity disclosures in the sustainability reports. A greater weighting of disclosures in the integrated reports indicates a higher level of quality as these disclosures are

known to be more relevant and pertinent than those presented in sustainability reports (Solomon and Maroun, 2012; Michelon et al., 2015).

3.4.2. Biodiversity reporting index

The second indicator (biodiversity reporting index) identified the frequency of biodiversity disclosures by these South African fishing companies in their integrated and sustainability reports relative to the length of the reports. A ‘density index’ was applied to determine the total biodiversity disclosures by number of pages and, subsequently, the disclosures per section of the integrated and sustainability reports (Michelon et al., 2015). This indicator allowed for an interpretation of whether biodiversity disclosures are integrated across these companies’ integrated and sustainability reports.

This measure was applied by accumulating sections where the integrated and sustainability reports the biodiversity disclosures were located. This indicated the predominant areas in which companies in the South African fishing industry disclose their biodiversity impacts and allowed for an examination of whether these sections were considered to be of a higher quality or not. A paper published by De Villiers and van Staden (2011) revealed the sections of annual reports in which biodiversity is of a higher quality and the locations where environmental disclosures are perceived to be more useful to stakeholders. The environmental risks and future costs relating to environmental restoration sections of annual reports were perceived to be of higher quality and so more emphasis should be placed here, as compared to other sections such as management statements and performance reviews (De Villiers and van Staden, 2011). Scores were assigned, based on which sections biodiversity-related disclosures were located in the South Africa fishing companies’ annual reports. For example, once a biodiversity disclosure was located, the section of the company’s annual report in which it was disclosed was noted and assigned a score of ‘1’. The sections in Table 9 and 10 were noted to contain biodiversity-related disclosures as prepared in the annual reports of the South African fishing companies.

3.4.3. Disclosure statement indicator

To further measure the quality of information presented, a comparison between policy statements and action statements has been made. This was done by assessing which biodiversity disclosure themes (as listed in Table 2) were presented as a policy statement and which themes were disclosed as an action statement. The results of this qualitative indicator show the type of disclosure statements predominantly used by South African fish companies in presenting their biodiversity impacts. Policy statements show little dedication to an actual improvement in the current state of biodiversity reporting, whereas action statements indicate a committed approach to the company's environmental impact. A greater emphasis on policy statements will highlight organised hypocrisy in the South African fishing industry as this shows more 'talk' around biodiversity disclosures than real action (Beretta and Bozzolan, 2004; Michelon et al., 2015). The approached followed by Michelon et al. (2015) is used to score the biodiversity disclosures in the companies under review.

Table 5: Michelon disclosure statements (Michelon et al., 2015)

Managerial Orientation	Forward Looking	Backward Looking
Boilerplate approach	Context – Expectations – Hypotheses	Policies, initiatives and strategies
Committed approach	Objectives and goals	Results and outcomes of actions

Each theme presented in the disclosure matrix (Table 2) was assigned a score based on whether it was considered to be a policy statement or an action statement. Within each theme, a score was assigned to policy statements if the disclosures were assessed to be policy and strategy based. However, if the disclosure was determined to consist of objectives and goals, the score for that disclosure was assigned to action statements.

3.4.4. Assurance of information indicator

The final indicator analysed whether the environmental information presented by companies is credible, reliable and transparent (Michelon et al., 2015). In order to determine this, companies must show that their information is externally, independently assured (Adams, 2004). This is demonstrated by companies preparing their annual reports with the GRI standards. Therefore, a score of ‘1’ was assigned if the company has an assurance statement in accordance with the GRI, whereas ‘0’ was allotted to companies without a GRI assurance statement (Michelon et al., 2015).

Table 6: Qualitative indicators

Indicators	Description	Quality level	Scoring system
Stand-alone reporting indicator	Percentage of companies which prepare a separate sustainability report. Ratio of disclosures in the integrated reports as compared to the sustainability reports.	The higher the percentage of companies which prepare separate sustainability reports, the better the quality. A greater ratio towards integrated reports indicates better quality.	Scores are assigned for each integrated and sustainability report prepared by the company. '1' is allocated per report produced and '0' if no report is prepared.
Biodiversity reporting index	Percentage of biodiversity disclosures per number of pages in the integrated and sustainability reports. Sections in which biodiversity disclosures were located in the integrated and sustainability reports.	The greater the number of pages disclosing biodiversity issues in companies' annual reports, the better the quality. Disclosures on risk and future biodiversity costs are sections associated with better quality.	The number of pages in which a biodiversity score was located is divided by the total number of pages in the respective reports (separated by integrated and sustainability reports). The score is, therefore, a ratio with a minimum value of 0 and a maximum value of 1. A nil score reflects no biodiversity information was disclosed, 1 indicates that biodiversity disclosures were present.
Disclosure statements	Comparison between policy statements and action statements.	The more action statements present, the better the quality of the report.	Policy statements were determined if the theme was policy and strategy based. Action statements were decided upon if the theme was objective and goal based. Therefore, each disclosure was assessed and scores were assigned, based on

			whether they met the above explanations of an action or policy statement.
Assurance of information	The presence of an assurance framework or statement.	Companies which have an external, independent assurance statement have a better quality report.	A score of ‘1’ is assigned to a report if it has been prepared in accordance with the GRI standards, whereas a score of ‘0’ is allocated if the report is not prepared using GRI.

3.5 Analysis

The research uses a similar approach to that followed by Michelon et al. (2015) to analyse biodiversity disclosures. The data collected as per Section 4 was reviewed interpretively to gain a sense of the frequency of reporting and which themes are being emphasised in integrated and sustainability reports. This was in contrast to the measures of disclosure quality (as outlined in Section 3.4). Divergences in quality and quantity measures per company (and per disclosure theme in total) was used to highlight the operation of organised hypocrisy in the integrated reporting project of the South African seafood industry (adapted from Cho et al. (2015). Qualitative results were analysed in order to provide further detail about the extent of biodiversity disclosures in the South African fishing industry. Examples of qualitative information presented by these companies allowed for the analysis of the commitment shown toward biodiversity in the industry (Cho et al., 2015).

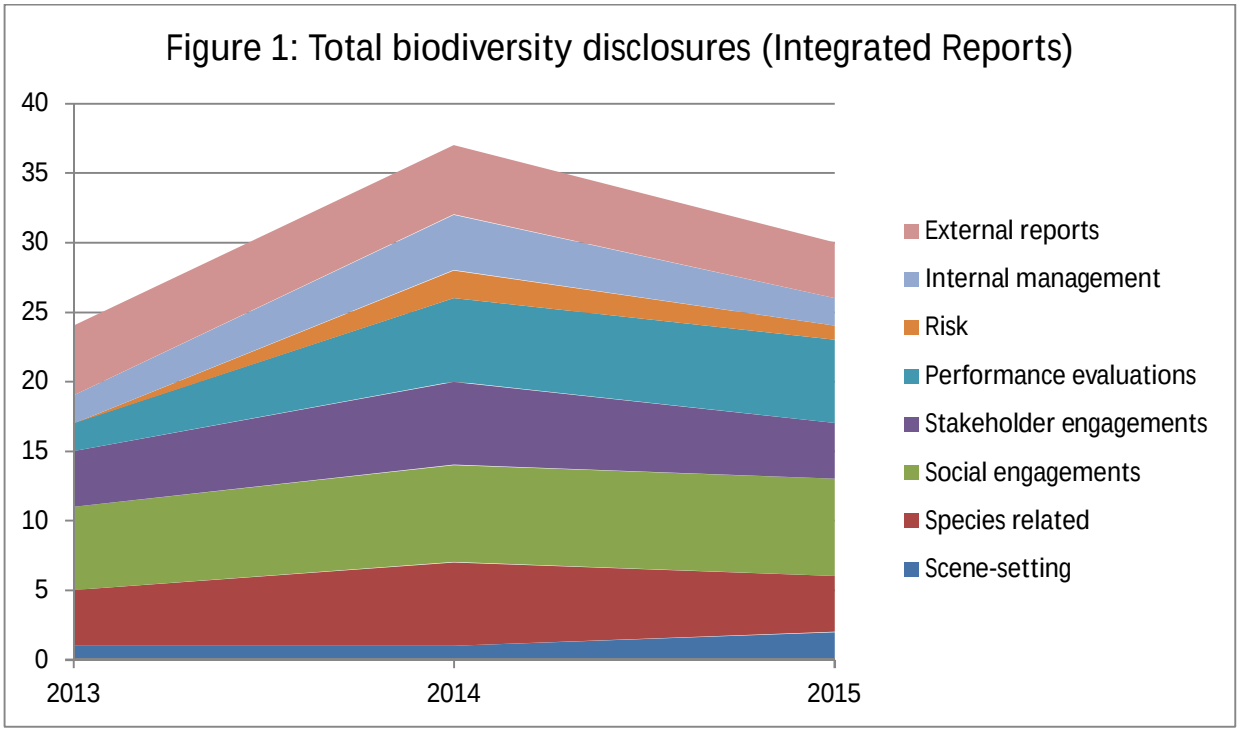
The quantitative and qualitative indicators were used in order to examine whether there is organised hypocrisy in the South African fishing industry. Highlighting the differences between the supposed commitment to enhancing biodiversity and real action taken, was an important matter to be assessed, as it showed whether improvement in biodiversity-related disclosures in the industry needs to be made. Matching the data to the theoretical framework allowed for the study to be successful as it indicated whether organised hypocrisy is present in such an industry or not. Subsequently, the results of this study highlighted organised hypocrisy by South African fishing companies in terms of their ‘talk’ surrounding biodiversity issues with limited action in this regard.

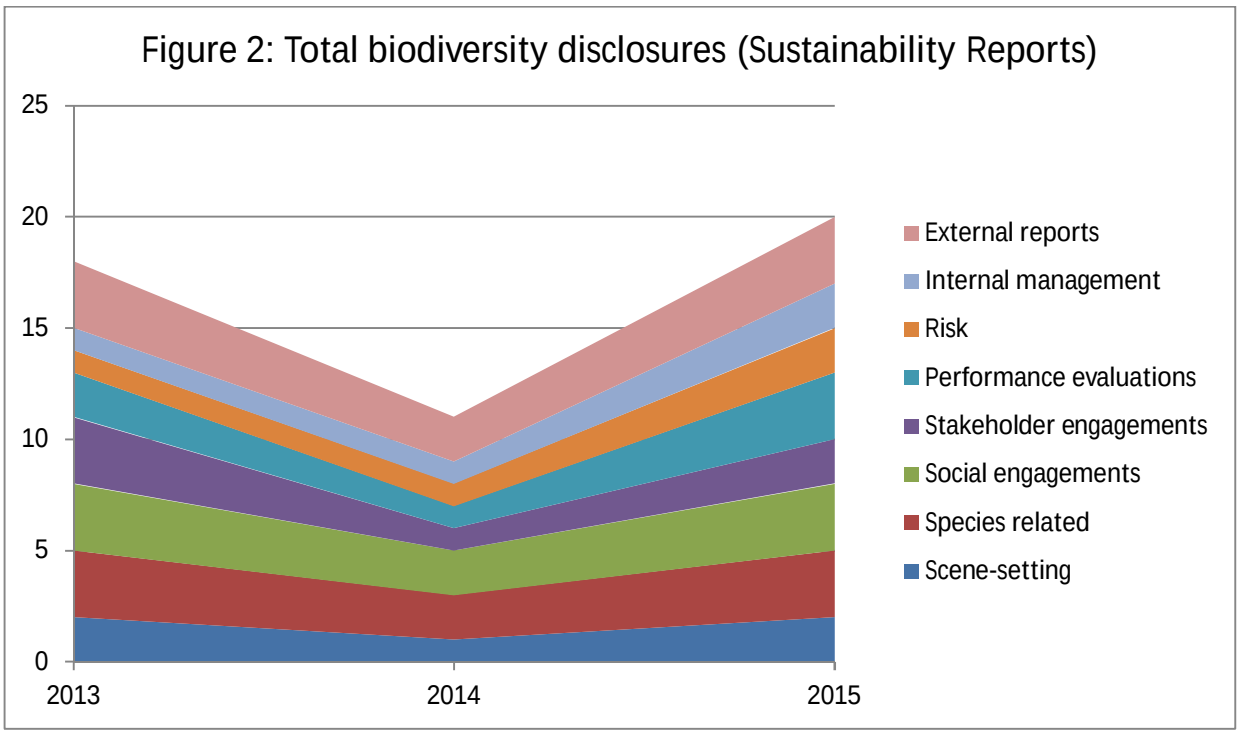
The results of the quantity and quality of biodiversity disclosures were assisted by presenting extracts from the integrated and sustainability reports as shown in the discussion section of this report. This allows for the examination of disclosure examples presented by the South African fishing industry. The themes could be further explained by referring to specific extracts from these companies’ reports which allows for an enhanced analysis of the results.

4. Results

4.1. Quantitative results

The quantitative results have been compiled after analysing the data collected from the disclosure matrix in Table 2. Each theme has been analysed along with a year-on-year comparison. The results are split into an analysis of integrated and sustainability reports.





The figures show the total biodiversity disclosure scores of each theme analysed across the three years of the study. This allows an analysis of the changes in the extent of biodiversity disclosure themes from 2013 to 2015. The figures were split in order to show the disclosure themes across the relevant years for both the integrated and sustainability reports. It can be seem from Figure 1 that, overall, the disclosures in the integrated reports of the South African fishing industry improved from the beginning to the end of analysis, with the highest scores noted during 2014. Figure 2, shows an increase in the overall scores from 2013 to 2015, however the lowest scores were recorded in 2014. These scores were generally lower than the integrated report scores because fewer companies produced separate sustainability reports. The themes which attracted the lowest scores were scene-setting and risk disclosures. These results, along with the other findings, are discussed in Section 5.

Mansoor and Maroun (2016) indicate a higher level of biodiversity disclosures in the South African JSE listed companies in the mining and food sectors. The results in Figure 1 and 2 show a much lower level of biodiversity disclosures which is worrying for the country's fishing industry as this is also a sector of the JSE which is heavily reliant on biodiversity for the industry's continuance into the future. Furthermore, there was an increase in the biodiversity disclosures over the three year analysis of the mining and food sector (see Mansoor and Maroun, 2016), however this was not evidenced as much in the current study of the South African fishing industry.

4.2. Qualitative results

The quality of biodiversity disclosures presented by companies in the South African fishing industry is a crucial indicator of whether or not this industry is taking biodiversity reporting seriously (Michelon et al., 2015). The quality of biodiversity disclosures was determined using four indicators to determine whether the quality was high and if sufficient information was disclosed by the South African fishing companies (Beck et al., 2010; Michelon et al., 2015).

4.2.1. Stand-alone reporting indicator

Table 7: Stand-alone reporting indicator

	2013	2014	2015
Percentage of companies which prepare a separate sustainability report	42.86%	28.57%	42.86%
Ratio of disclosures in integrated reports to sustainability reports	1.33:1	3.36:1	1.5:1

Table 7 shows a greater movement of South African fishing companies towards integrating reporting. However, in terms companies preparing a separate sustainability report, this percentage has remained relatively low over the three year analysis. There are far more biodiversity disclosures presented in these companies' integrated reports which does indicate a higher quality of disclosures (Solomon and Maroun, 2012; Michelon et al., 2015). However, the lack of biodiversity disclosures in their sustainability reports does indicate a positive aspect of the fishing companies' environmental disclosures. Because of the low percentages of South African fishing companies which prepare separate sustainability reports, much improvement is required in order to provide stakeholders with valuable information. An integrated report is meant to provide a holistic assessment of the company's operations and, therefore, is the primary report stakeholders refer to in their analysis of the company. As a result, the low number of sustainability reports could indicate a change in reporting customs, rather than the reflection of a relevance and perceived importance of biodiversity disclosures. The emphasis on integrated reporting, as evidenced in Table 7 above, complements this view and indicates a positive conclusion for this qualitative indicator.

4.2.2. Biodiversity reporting index

Table 8: Biodiversity reporting index

	2013	2014	2015
Percentage of biodiversity disclosures per number of pages in the integrated report	2.31%	3.5%	2.52%
Percentage of biodiversity disclosures per number of pages in the sustainability report	10.16%	11.02%	9.84%

The percentage of biodiversity disclosures per number of pages from both the integrated and sustainability reports is low across the three years. The sustainability reports percentage is higher than the integrated reports due to having fewer pages in its report in totality, meaning the ratio will be mathematically obscured to its favour. This is a worrying indicator for the South African fishing industry as biodiversity themes were of low volume in terms of total sustainability analysis which implies low importance of biodiversity in an industry which relies on the use of natural resources.

The low percentages indicated in Table 8 were consistent with findings by Michelon et al. (2015) on sustainability reporting quality in general. This study found that the large number of pages in annual reports were the result of low percentages of sustainability disclosures per number of pages. This is because the low number of sustainability disclosures were divided by a large number of pages in a company's annual report, which resulted in the ratio being mathematically lower (Michelon et al., 2015).

Table 9: Qualitative sections of integrated reports

Section of Integrated Report	2013	2014	2015
Sustainability	12	19	7
Subsidiary report			5
Management statement	1	2	
Stakeholder engagement	4		3
Capitals		4	2
Objectives	1	1	1
Business model	2	3	2
Performance review		3	3
Environmental impact			1
About this report	4	3	3
Strategy	1	1	

Table 10: Qualitative sections of sustainability reports

Section of Sustainability Report	2013	2014	2015
Objectives	1		
Values		1	1
Management statement	2	1	1
Performance review		1	2
Marine resources		1	3
Sustainability	6		4
Risks	1	2	2
About this report	2	2	2
Stakeholders	2	1	1
Environment	3		1
Strategy	1	3	1
Conclusion	1	1	1

Furthermore, the sections of the integrated and sustainability reports in which the South African fishing companies disclose their biodiversity issues do not translate into a positive indicator. The sections of annual reports, as indicated by De Villiers and van Staden (2011), which are of a higher quality as opposed to other sections are the discussions on risk and future biodiversity costs. The results from the risk theme as shown in Section 5.1.6 compliment this qualitative indicator as limited disclosures have been presented in terms of this section. The South African fishing companies fail to disclose sufficient information on the biodiversity risks associated with the operations. This is evidenced in Table 9 and 10 in which only five sections in the integrated and sustainability reports of the South African fishing disclosed risk-related sections across the three year analysis. There are a low number of risk disclosures presented in these companies' sustainability reports from 2013 to 2015, which is complemented by the results shown in Figure

1 and 2 in terms of the low scores assigned to the risk-related theme. However an improvement needs to be made in terms of these higher quality biodiversity sections of the South African fishing industry's annual reports.

4.2.3. Disclosure statements

An important aspect by which to determine the quality of biodiversity information presented by companies in the South African fishing industry was whether their disclosures were merely policy statements or if they pointed to action involving biodiversity impacts.

Table 11: Disclosure statements

Talk	Action
Scene-setting	*Social engagements*
Species-related	*Stakeholder engagements*
Risk	*Performance evaluations*
External reports	*Internal management*

Table 11 shows an equal split between the biodiversity themes in terms of policy and action statements. Action statements are perceived to be of a higher quality because it shows that companies are committed to improving their biodiversity impacts (Beretta and Bozzolan, 2004). Using a similar approach to Michelon et al. (2015) and Cho et al. (2015), the researcher assigned descriptive biodiversity disclosures to the 'talk' category. These included: scene-setting, species-related disclosures, risk statements and descriptive external reports. Biodiversity disclosures interpreted as action-specific were: stakeholder engagements, social engagements, performance evaluation and internal management reporting. Each theme was scored, based on whether it was a policy statement or an action statement. This was performed on the integrated and sustainability reports of companies in the South African fishing industry.

Table 12: Disclosure statement scores

	Talk			Action		
	2013	**2014**	**2015**	**2013**	**2014**	**2015**
Scene-setting	10	9	10			
Species-related	10	9	10			
Social engagements				10	9	10
Stakeholder engagements				10	9	10
Performance evaluations				10	9	10
Risk	10	9	10			
Internal management				10	9	10
External reports	10	9	10			

It is a good indicator that the South African fishing industry has four of the themes in Table 11 as action statements, however, an improvement in the policy statements still needs to be made. Table 12 shows little movement between the policy and action statement scores, which is the area for improvement needed in the South African fishing industry. Movement from the policy scores to the action scores in future years would indicate a proposed commitment to improving the state of biodiversity. The policy statements of the South African fishing companies highlights organised hypocrisy in the industry because this indicates more 'talk' surrounding these matters than any real action. It is essential to note from the study performed by Beretta and Bozzolan (2004) that improvement in the information presented is more important than how much companies disclose. Biodiversity needs to be conserved for future generations and a method to achieve this is through heightened awareness around companies' action with regards to their biodiversity effects.

4.2.4. Assurance of information

The form of an assurance statement was determined compliance with the GRI framework. Companies which prepared their integrated reports using the GRI framework were assigned a

score of '1', whereas companies which failed to use the GRI framework in preparing their integrated report received a score of '0'.

Table 13: Assurance of information

	2013	2014	2015
Oceana Group Ltd	0	0	0
AVI Ltd	1	1	1
Brimstone Corporations Ltd	1	1	0
Pick and Pay Stores Ltd	1	1	1
The Spar Group Ltd	1	1	1
Woolworths Ltd	1	1	1
Massmart Holdings Limited	0	0	0
Total	5	5	4

Table 13 shows that the majority of South African fishing companies externally assure their information (Adams, 2004). The results imply that the majority of these companies' environmental disclosures are credible, reliable and transparent (Michelon et al., 2015). This is a positive indicator for the industry as most of their biodiversity disclosures are assured by the GRI framework which indicates a high quality of environmental disclosures. The assurance of information is complemented by the fact that this shows action by the South African fishing companies by committing to use the GRI as a disclosure framework, which is evidenced in Figures 1 and 2 showing a high number of companies in the industry using the GRI framework as a basis to prepare their integrated and sustainability reports. This indicates higher regulation and is considered an action statement as described by the fourth qualitative indicator above. A committed approach to biodiversity conservation shows higher a quality of disclosures in this regard (Beretta and Bozzolan, 2004).

5. Discussion

Biodiversity disclosures in the South African fishing industry need to be further analysed and the reasons behind the results needs to be examined. An analysis of trends, movements, and type of disclosures within each of the biodiversity-related themes in the disclosure matrix is performed in Section 5 which allows for a more detailed examination of the results. This discussion assists in determining whether there is the operation of organised hypocrisy in the South African fishing industry and indicating which areas require the much needed improvement in biodiversity disclosures.

5.1. Biodiversity disclosures per disclosure theme

This section discusses the results of each biodiversity theme evidenced in Figures 1 and 2. Examples within each theme have been extracted from the South African fishing companies' integrated and sustainability reports. Analysing biodiversity disclosures across each theme allows for the assessment of the nature and extent of the disclosures within the themes.

5.1.1. Scene-setting disclosures

The scene-setting disclosure theme was one of the lowest performing biodiversity related themes reported on by companies in the South African fishing industry (Section 4.1). This is evidenced in Figure 1 and Figure 2 by the lack of South African fishing companies disclosing biodiversity in their mission statements or visions. There were many broad environmental statements made by these companies but these were not specific enough to be considered as a score for the scene-setting disclosure theme, as seen below:

> *Beyond integrity and transparency in our dealings with our shareholders, customers, consumers, employees and other stakeholders, this also encompasses a commitment to ensuring that AVI plays its role as a corporate citizen to minimise any adverse environmental impact, and to improve the living standards and address the ongoing need for transformation in the society in which it operate* (AVI Ltd integrated report, 2015).

This finding assists in highlighting organised hypocrisy in the South African fishing industry as there is often broad 'talk' around biodiversity issues without real action to combat its decline (see Cho et al., 2015). Furthermore, the introductory paragraphs of the integrated reports of these companies were financially driven without much emphasis on the economic implications of biodiversity loss. At the same time, the overemphasis on financial means negates the need for environmental reform. This result for the scene-setting theme could be interpreted as an inadequate understanding by the South African fishing industry with regards to biodiversity in relation to their business operations. Furthermore, this supports the notion of organised hypocrisy as companies are willing to reframe environmental issues as financial concerns or even omit them altogether.

A reason for a lack of biodiversity disclosures in the scene-setting theme could be explained by van Liempd and Busch (2013) in which they state that companies would rather refrain from making such disclosures to avoid public scrutiny and the subsequent accountability shareholders will demand from negative biodiversity disclosures. This is evidenced in a disclosure extracted from Woolworths' 2015 sustainability in which they broadly state biodiversity of fish resource without providing details about how they are improving biodiversity in the industry:

> *The world's fish stocks are seriously depleted. The good news is that a lot of work is being done to ensure there will be plenty of fish for future generations to enjoy* (Woolworths Ltd sustainability report, 2015).

De Villiers and van Staden (2011) found that companies in an environmental crisis will disclose less in their annual reports in order to avoid political scrutiny (see also Dube and Maroun, 2017). This supports the notion that South African fishing companies, being heavily reliant on the state of biodiversity, limit the number of disclosures on biodiversity to avoid the fact that they could be damaging the environment through their operations. The qualitative results in Section 4.2 showing that these companies are disclosing more policy statements than action statements complement these findings. The quality of this theme is poor as it does not show a committed approach to biodiversity improvements in an industry heavily reliant on the future state of biodiversity.

The best biodiversity disclosures evidenced in the scene-setting theme were noted by Oceana Group Ltd. Their disclosures did not discuss biodiversity explicitly, however, talk surrounding biodiversity was evidenced and so warranted an inclusion in this theme. The results from the qualitative disclosure statement indicator presented in Section 4.2.3 show that this is a predominantly policy statement which warrants a score but it is not of high quality. Extracts form integrated reports of Oceana Group Ltd regarding biodiversity in their mission statement, vision or introductory paragraphs are as follows:

> *Mission statement:*
>
> - *To be the leading empowered fishing and commercial cold storage company in Africa*
> - *Responsibly harvesting a diverse range of marine resources*
>
> (Oceana Group Ltd integrated report, 2013 and 2014).

The closest definitions of biodiversity across the various reports analysed, without mentioning the actual term, were located in Oceana's sustainability reports. The disclosures linked the need for sustainable fishing practices to ensure the future viability of fish species. The extracts are as follows:

> *Fish is a renewable natural marine resource which requires a responsible fisheries management approach to secure its future sustainability* (Oceana Group Ltd sustainability report, 2013).

The scores recorded in this theme have been relatively stable across the three years, with a slight increase as the analysis reached 2015. Apart from the above, there have been no distinct biodiversity disclosures by the other companies in the South African fishing industry. Stating that the company is environmentally responsible and sustainable in all that they do is general and lacking commitment in reporting specific biodiversity issues. The uncertainty is thought to be because of the absence of clear reporting guidelines, which complements discussion papers released on integrated reporting which suggests that companies do not know where to include biodiversity disclosures in their reports (Solomon and Maroun, 2012). This is evidenced in

Section 4.2.2 of the qualitative results as many of the companies in the analysis did not know where the best place to include their biodiversity disclosures was, and his resulted in a large number of locations in the integrated and sustainability reports. Improvement in this regard needs to be made in order for shareholders to understand that the South African fishing companies are, in fact, concerned about biodiversity and implementing actions to avoid the overconsumption of fish species (van Liempd and Busch, 2013).

5.1.2. Species-related disclosures

The species-related theme has positive results which indicate the South African fishing industry is taking a better stance with regards to biodiversity disclosures involving their fish produce. There has been an overall increase in the quantitative scores during 2014, however, the scores have been fairly even over the study. The main reason for the improvement in the findings presented in Figure 1 that many South African fishing companies are involved with SASSI which assists in identifying which of their fish produce is under threat and which are sustainable to source (SASSI, 2017). The partnership with SASSI increases shareholders' confidence in these companies. The SASSI List has assisted in this biodiversity disclosure theme which is confirmed by the use of the SASSI List by Pick and Pay Stores Ltd:

> *1 million SASSI cards distributed to consumers, assisting them to make more sustainable seafood choices* (Pick and Pay Stores Ltd integrated report, 2014).

By aligning their operations with SASSI, some of the South African fishing companies have been able to monitor the species of fish they are sourcing and report on the progress they have made in conserving the supply of these natural resources. Examples of such disclosures were included by a few of the South African fish companies in their sustainability reports in which each year they updated values reported on the SASSI Green List, as follows:

> *99,7% of our targeted South African commercial fishing rights are on the South African Sustainable Seafood Initiative's (SASSI) green list* (Oceana Group Ltd sustainability report, 2014).

> *45% of our seafood products by species and 87% of our products by sales meet our seafood sustainability targets, based only on species assessed by WWF South African Sustainable Seafood Initiative (WFF-SASSI)* (Pick and Pay Stores Ltd sustainability report, 2015).

> *85% of the volume (tonnage) of seafood species sold currently meets our sustainability commitments* (Woolworths Ltd sustainability report, 2015).

Furthermore, there are examples of disclosures that have shown awareness of the much needed constant supply of fish resources for years to come, such as:

> *Sea Harvest will do its part and continue to ensure that Cape Hake will be available for future generation* (Brimstone Corporations Ltd integrated report, 2015).

These disclosures indicate a positive movement in the South African fishing industry with regards to their biodiversity practices. The only criticism evidenced in this theme is that more attention needs to be given to the actual species affected by these companies' operations, but these results have considerably improved, compared to the study performed by van Liempd and Busch (2013) which indicated that species-related disclosures were often general and vague. While significant improvement needs to be made in the general outlook of biodiversity-related disclosures, the commitment shown in the species-related theme indicates that South African fishing companies are moving towards enhanced biodiversity disclosures.

5.1.3. Social engagement disclosures

Following the positive results reflected in the species related theme, the disclosures on social engagements have further indicated positive signs for biodiversity disclosures in the South African fishing industry. This has been shown in Figure 1 and 2 as there were high biodiversity scores across all three years of the analysis. The main reason for such high disclosure scores is the fact that many South African fishing companies have entered into partnerships with various NGO's.

The core partnership is between the South African fishing companies and WWF-SASSI. Most of the companies under examination are involved with SASSI in one way or another to promote sustainable seafood practices, conserve their fish produce or ensure the biodiversity of fish resources for future generations (SASSI, 2016). Although many of the South Africa fishing companies reported limited information on their partnerships with the various NGO's, some have assisted in providing financial support to NGO's in order to achieve goals set out by the relationships. An example of this has been extracted from Pick and Pays' sustainability report:

> *Pick n Pay is investing more than R6 million in the three-year partnership, which supports the WWF's drive to promote an Ecosystem Approach to Fisheries (EAF), recognising the critical role that marine ecosystems play in the maintenance of resilient sociocultural systems in the face of the growing threats of climate change and food security* (Pick and Pay Stores Ltd sustainability report, 2013).

Other relationships with NGO's which were frequently reported include the MSC, the DAFF, and the Responsible Fisheries Alliance (RFA)[8].

An extract from Brimstone Corporations' integrated report indicates the best biodiversity related disclosure in terms of their partnerships with NGO's:

> *As a founding member of the Responsible Fisheries Alliance (RFA), Sea Harvest together with other fishing companies and environmental non-governmental organizations (NGOs) will continue to meaningfully participate in strategic initiatives aimed at strengthening its support in implementing the adopted EAF to protect and enhance the marine ecosystem health as whole, on which life and human benefits depend.* (Brimstone Corporations Ltd integrated report, 2013 and 2014).

This example does not reflect a valid representation of the South African fishing industry as many companies merely state their partnership with NGO's without expanding on the details of the relationship and *how* the two parties intend to achieve protection of fish resources. This

[8] The RFA work with various organisations to ensure a healthy marine ecosystem in Southern Africa (RFA, 2011).

highlights organised hypocrisy because companies are satisfied to mention their involvement with various NGO's without providing further details on projects or initiatives set out by the NGO's. An example of this has been extracted from Woolworths' sustainability report in which they disclose their NGO partnerships without providing details on projects involved in, such as:

> We're working with the MSC, WWF-SASSI and the Aquaculture Stewardship Council (ASC) to ensure that all the seafood at Woolworths is responsibly sourced (Woolworths Ltd sustainability report, 2015).

The above disclosures warranted a score in the social engagement theme. However, in order for the fishing industry to ensure the future availability of natural fish resources, improved reporting on NGO projects needs to be done. This will allow stakeholders to make informed decisions on whether these fish companies are making a valid effort in sustainable fishing practices. Engagements with NGO's were not frequently disclosed, (Section 4.2.2), as a separate section for interactions with NGO's as these were not presented in the South African fishing companies' integrated and sustainability reports.

A possible reason for the lack of detail with regards to these disclosures is public relations as the more companies disclose in their integrated reports, the more they open themselves up to public scrutiny (van Liempd and Busch, 2013). Therefore, by disclosing a low amount of information on these partnerships, the South African fishing companies avoid questions regarding their biodiversity impact. These findings support the operation of organised hypocrisy in this industry as there is often 'talk' surrounding these biodiversity issues with little action. The South African fishing industry needs to improve this in order to gain the confidence of stakeholders who are counting on them to maintain biodiversity sustainability for the future.

5.1.4. Stakeholder engagement disclosures

The stakeholder engagement theme is a vitally important biodiversity disclosure as a company's primary communication should be with the stakeholders who are affected by their operations (Berthelot et al., 2012; The International Integrated Reporting Council., 2013). This is relevant in the fishing industry as stakeholders need interaction with companies which are supplying fish

resources in order to guarantee their existence in future years. Figure 1 and 2 show a positive engagement with stakeholders in biodiversity related issues which can be explained through the high biodiversity scores assigned to this theme, with a peak reflected in the 2014 scores.

The core disclosures which warranted an inclusion in the stakeholder engagement theme was through training employees in fish conservation and biodiversity-related issues. Many of the South African fish companies reported that they train their employees in seafood sustainability practices. The concern with these disclosures was the details surrounding the training as most companies referred to the training programme without expanding on the relevant details. This notion of organised hypocrisy in that these fish companies are willing to supply the minimum disclosures without having to open themselves to public scrutiny of their biodiversity activities. The South African fish companies pursue their own interests without providing the much needed education to stakeholders in the seafood community (Krasner, 1999). An example of such a case is extracted below:

> *I&J remains a leading training provider to the wider South African maritime community with its training courses for seamen (AVI Ltd integrated report, 2013).*

The lack of detail here questions the reliability and quality of the stakeholder engagement disclosures on biodiversity training. This training and education of the seafood community is vitally important as stakeholders need to be informed adequately of biodiversity impacts. The South African fish companies need to be responsible for providing the necessary information to stakeholders in order for them to make decisions with regards to their involvement in such companies.

On a positive note, some of the South African fish companies do present biodiversity-related engagement with stakeholders through various innovative projects such as:

> *The SPAR Group entered into a relationship with WWF's Southern African Sustainable Seafood Initiative (SASSI) in December 2010. The initiative is aligned to the SPAR sustainable business strategy, in which the group commits to:*

> *• Driving innovation in our house brands to reduce the environmental impact of their full lifecycles*
>
> *• Raising awareness and improving education around sustainability issues within our own organisation, our retailers' businesses and our own communities*
>
> *• Engaging and collaborating with our suppliers and retailers to ensure that their business practices are ethical and environmentally* sustainable (The Spar Group Ltd integrated report, 2014).

A positive stakeholder engagement disclosure was presented in the 2013 Woolworths' sustainability report in which they engage with communities by providing newsletters, meetings and discussions. The extract was disclosed as follows:

> One of the GBJ [Woolworths' Good Business Journey sustainability initiative] Champs' main responsibilities is to share monthly GBJ newsletters with their colleagues during a Let's Talk meeting. These discussions aim to provide colleagues with the opportunity to grasp issues such as climate change, water scarcity, food security and biodiversity, and learn how Woolworths is tackling some of these issues (Woolworths Ltd sustainability report, 2013).

This type of disclosure was often limited overall. In several cases vague information was presented and it was unclear whether or not the company engages with their stakeholders on biodiversity or other sustainability-related issues. The frequency of biodiversity disclosures located in the stakeholder sections of the integrated and sustainability reports also scored low which was evidenced in the qualitative results in Section 4.2.2. This was further evidenced in Woolworths' sustainability reports in the subsequent years post 2013 in which they failed to provide the disclosures on engagement with stakeholders through newsletters, meetings and discussions. The example of the decline in disclosures was presented as follows and did not warrant a score for the stakeholder engagement theme:

> *Increase customer awareness and understanding of sustainability issues* (Woolworths Ltd sustainability report, 2013).

The overall engagement with stakeholders was presented by some companies in the South African fishing industry and interaction such as this should be followed by other companies in the industry to promote the importance of biodiversity in communities (South African National Biodiversity Institute, 2014). This will provide an encouraging image for stakeholders to be confident in the industry moving forward. Because of the many challenges facing the fishing industry, such as biodiversity, only through engagement with stakeholders can there be an improvement in the coming years (Planet Earth Herald., 2016b; Planet Earth Herald., 2016a).

5.1.5. Performance evaluation disclosures

As in Figures 1 and 2, the recorded scores were relatively high during 2014 and 2015, but there are a number of reasons for the increase in disclosures. The core reason is the introduction of the SASSI Participant Report initiative in 2014. The SASSI Participant Report was developed to allow willing companies in the fishing industry to take a stand on sourcing their fish produce and seafood responsibly. These commitments were a result of consumer pressure for companies to stock sustainable seafood (SASSI, 2015). This questions whether any of these details would have been provided without the intervention of SASSI and leads to further discussion of organised hypocrisy in the South African fishing industry. SASSI has introduced much-needed improvement to an industry which relies on the sustainability of natural resources in order to operate in the future.

The following companies were a part of the SASS Initiative in 2014 and 2015: I&J (AVI Ltd's subsidiary), Pick and Pay Stores Ltd, The Spar Group Ltd, and Woolworths Ltd (SASSI, 2014; SASSI, 2015). This explains the positive results across the two years. However, many of the companies above did not disclose their involvement in the SASSI Progress Report initiative in their integrated reports and scores were assigned from the SASSI list of companies involved in the project (SASSI, 2014, 2015). Disclosures in the integrated reports on projects such as these should be presented to stakeholders as it will enhance the awareness of such initiatives.

Even though more companies in the South African fishing industry need to form part of this initiative (see SASSI, 2014, 2015), a positive start would be to disclose details of any such

projects involved in, targets set out to achieve and progress made over the years. The following is an example of a performance evaluation disclosure implying that the company sets environmental targets, but no elaboration or biodiversity details are provided:

> *Annual progress against agreed targets for key environmental initiatives, the company's participation in external accreditation surveys and the results of health and safety and environmental audits of company sites and vessels were reviewed and found to be satisfactory* (Oceana Group Ltd integrated report, 2014).

A further worrying indicator in this biodiversity disclosure theme is the lack of future rehabilitation costs disclosed. Only one of the South African fish companies examined presented rehabilitation costs with regards to their biodiversity effects on the environment. This connects with the qualitative section analysis in Section 4.2 which highlighted the sections of annual reports which indicate better quality as compared to other sections. Disclosures of future biodiversity rehabilitation costs were noted as a good quality location by De Villiers and van Staden (2011) as it shows a committed approach to future biodiversity conservation. The fact that only one South African fish company disclosed rehabilitation costs does not show a good quality of disclosures in this theme. The lack of future biodiversity costs disclosed indicates that these companies are not taking the conservation of biodiversity seriously, which is a worrying sign for the industry.

The Spar Group and Pick and Pay Stores Ltd had some of the most positive performance evaluation disclosures with regards to setting biodiversity targets for their operations in future years. Commitment to biodiversity targets is the key to the South African fishing industry ensuring the supply of seafood for future generations. The following are examples of such disclosures:

> *Pick n Pay was the first retailer in Africa to commit to selling 100% sustainably sourced fish by 2016, whether fresh, frozen or canned* (Pick and Pay Stores Ltd sustainability report, 2013).

> *SPAR's commitment is to ensure that by 2016 all SPAR private label seafood products will be:*
>
> *1. Certified by the Marine Stewardship Council (MSC); or*
>
> *2. Certified by the Aquaculture Stewardship Council (ASC) (or equivalent standards for farmed products); or*
>
> *3. Categorised as Green by SASSI; or*
>
> *4. Sourced from a fishery or farm engaged in an Improvement Project* (The Spar Group Ltd integrated report, 2014).

These clauses depict an internal target set by the company which they will attempt to achieve in order to conserve biodiversity. Subsequent to this disclosure in 2014, a report on their progress should be disclosed to stakeholders to make them aware of their monitoring of targets in order to achieve sustainably sourced seafood (SASSI, 2014; SASSI, 2015). An extract from an integrated report which portrays such a disclosure follows:

> *Since 2010 we have invested R13.5 million in the World Wildlife Fund's Sustainable Fisheries Programme. (By year-end 45% of our seafood products by species, and 87% of these products by sales, met our seafood sustainability targets)* (Pick and Pay Stores Ltd integrated report, 2015).

Woolworths presented some of the best performance evaluation disclosures with regards to setting biodiversity targets and subsequently reported on their progress to meet the targets in the following years. This shows that they are concerned with the sustainability of seafood and are willing to commit to targets being set in order to be held accountable if these targets are not met. This culminated in recognition received by Woolworths for biodiversity which indicates that they met biodiversity-related targets:

> *Woolworths was a finalist in the National Science and Technology Forum (NSTF)-GreenMatter Award for an individual or an organisation towards achieving biodiversity conservation, environmental sustainability and a greener economy* (Woolworths Ltd sustainability report, 2015).

Other companies in the South African fishing industry should apply similar disclosures in their integrated reports as it confirms their commitment to biodiversity in the seafood industry and give stakeholders confidence in the ability for future generations to have a supply of fish produce. Without the necessary commitment to future levels of biodiversity, the notion of organised hypocrisy comes to attention as these companies are willing to reflect a responsible environmental image, but no action behind the statements can be noted. This is worrying for an industry heavily reliant on natural fish resources in order to operate.

5.1.6. Risk disclosures

In Figures 1 and 2, the risk disclosure theme was another low-scoring biodiversity-related theme. The risk disclosure theme should be an important theme to focus on with regards to biodiversity as a company's material risks should communicate how seriously the company is taking biodiversity and what measures they are putting in place to mitigate its impact (Raemaekers et al., 2016). However, the distinct lack in scores (Figures 1 and 2), assigned to the risk themes across all three years of the analysis is a worrying indicator that suggests South African fishing companies are unconcerned about biodiversity activities. Extracts from some of the only integrated and sustainability reports which were assigned a score with regards to the biodiversity risk theme are as follows:

> *Our material risks: Our Variation/depletion in availability of marine resources* (Oceana Group Ltd integrated report, 2015).

> *We drive change throughout our seafood supply chain to mitigate risks of over-fishing* (Pick and Pay Stores Ltd sustainability report, 2015).

Much improvement needs to be made in this regard as risk is seen as an important disclosure location (Section 3.4.2). Low scores, coupled with the fact that disclosures were vague and general, do not give shareholders confidence with regard to the South African fishing companies adequately addressing their biodiversity risks. Often the fish consuming companies reported on general environmental disclosures, such as climate change, which did not warrant an inclusion

in the risk theme for a biodiversity study[9]. Low levels of risk disclosures went hand-in-hand with little motivation to support a biodiversity risk management plan. This indicates that risk disclosures are used as tools for compliance, instead of effective stakeholder communication (Raemaekers et al., 2016). Furthermore, Mansoor and Maroun (2016) found that disclosures of biodiversity risks were generic and lacked the relevant action required in order to improve the current state of biodiversity reporting in South Africa (Atkins and Maroun, 2014).

The qualitative results support the view that risk disclosures are superficial. In particular, the location in which disclosures are presented is telling. The results in Section 4.2 indicate that if, in fact, biodiversity is disclosed at all in their integrated and sustainability reports, it rarely forms part of the South African fish companies' key or material risks. These findings limit stakeholders' awareness of the importance of the risk sections of annual reports, as shown in the paper produced by De Villiers and van Staden (2011). The risk theme should provide valuable information to stakeholders in order for them to make decisions on their involvement with such a company. These results highlight organised hypocrisy in the South African fishing industry as these companies are willing to state that they are environmentally responsible without disclosing the fact that biodiversity is a serious risk facing this industry (see Cho et al., 2015). Without adequate disclosures on biodiversity risks facing the industry, the overconsumption of natural fish resources will continue (van Liempd and Busch, 2013).

5.1.7. Internal management disclosures

The internal management disclosure theme is an important aspect of biodiversity as it describes whether or not companies in the South African fishing industry have a biodiversity action plan or an officer to address the various stakeholders' concerns regarding biodiversity. The low scores in Figures 1 and 2 (Section 4.1), and the lack of improvement over the years, show the inconsistency in biodiversity disclosures involving the internal management of these fish consuming companies. Another concern is the fact that, when a disclosure was located, it was

[9] General environmental disclosures were not considered as a biodiversity score as these were often vague and lacked any real committed approach to conserve biodiversity in an industry which relies on its existence to continue in operation (Mansoor and Maroun, 2016).

often vague and lacked any detail with regards to the actual biodiversity plan being implemented. An example of such a disclosure was presented in the 2013 Oceana Group Ltd sustainability report:

> *While Oceana takes care to minimise its impact on the environment, certain risk factors are beyond our direct control and can affect performance. Oceana has a detailed plan on how to address the impact within its control and influence and manage the factors outside its control* (Oceana Group Ltd sustainability report, 2013).

The above disclosure does not explain their environmental plans and so a score could not be assigned. However, there is an indication of improvement in the company's disclosures as in 2015 Oceana received a score for their internal management disclosures within their sustainability reports. By 2015, the following internal management plan was presented in their sustainability report:

> • *Obtaining independent research reports of the resources in order to monitor the status of the resources*
>
> • *Compliance with the regulatory framework*
>
> • *Complying with responsible fishing practices*
>
> • *Training crew on responsible fishing practices*
>
> (Oceana Group Ltd sustainability report, 2015).

Furthermore, the Oceana Group did disclose that the company utilises a sustainability forum which directly addresses stakeholders' environmental issues, and this is a step in the correct direction (Oceana Group Ltd integrated report, 2013, 201, 2015). However, an insufficient number of South African fish companies disclose such a mechanism. A possible solution for the South African fish companies to consider is having a sustainability team within the company. This was evidenced in Woolworths' sustainability report across all three years of analysis. Having such a team in place allows stakeholders to share their views on sustainability and gain

feedback on any sustainability issues existing (see Woolworths Ltd sustainability report, 2013, 2014, 2015).

The best disclosures in the internal management theme were located in the integrated reports of AVI Ltd: they disclosed a plan with regards to their fishing rights. A further encouraging sign is that the company updated their information each year to represent the improvement in plans to source sustainable seafood. The following is an extract from the integrated report of AVI Ltd in 2015 which is similar to their previous years' disclosures:

> *In May 2015 the Marine Stewardship Council ("MSC") recertified that the South African hake resources met the requisite environmental standards for sustainable fishing for a further five years. This certification gives assurance to buyers and consumers that the seafood comes from a well managed and sustainable resource, which is increasingly relevant in I&J's export markets* (AVI Ltd integrated report, 2015).

An overall view of the internal management theme of the South African fishing industry, shows a lack of disclosure in this area (Figures 1 and 2). These findings complement the operation of organised hypocrisy in the South African fishing industry. A reason for the poor disclosures represented in the internal management theme could be due to the recurring trend of only disclosing or, in fact, not disclosing enough information, on biodiversity issues in order to keep a good public image (van Liempd and Busch, 2013). Even though this biodiversity related theme is an action statement (Section 4.2.3), improvement needs to be made in the range of details provided as to management plans to lessen their impact on biodiversity. Furthermore, lacking the details behind biodiversity related disclosures allows the companies to avoid being held accountable for poor biodiversity impacts. Rather than attracting negative public attention, companies will only disclose positive biodiversity impacts and, if not, disclose less information than required by stakeholders (Mansoor and Maroun, 2016).

5.1.8. External reports disclosures

The main external reporting framework used by the industry is the GRI (Rimmel and Jonäll, 2013). As seen in Figures 1 and 2 (Section 4.1), the use of an external reporting policy has been

fairly consistent throughout the years examined, with a slight decline in the 2015 year. A reason for this is because Brimstone Corporations Ltd reported less sustainability information in 2015 and did not use the GRI framework in their 2015 integrated report.

The assurance of information qualitative indicator too shows a high number of companies using the GRI as a framework. The GRI standards are known for high quality which indicates a positive sign for the South African fishing industry as the majority of their environmental disclosures are externally and independently assured (see Adams, 2004). Using GRI standards indicates that, when biodiversity disclosures are made, they are credible, reliable and transparent (Michelon et al., 2015). This assurance of information is another factor which improves the quality of biodiversity disclosures.

However, concern with the South African fishing companies merely using the GRI is the fact that they applied this framework in the broadest terms without focusing on biodiversity indicators. As seen in the following extract, many of the South African fishing companies claim their compliance with GRI without an explanation of how it relates to biodiversity in a natural fish resource context (see Mansoor and Maroun, 2016):

> *The sustainability report included in this integrated report is based on guidelines provided by the Global Reporting Initiative (GRI)* (Brimstone Corporations Ltd integrated report, 2013 and 2014).

A positive sign for the external reports' theme was the fact that the South African fish companies updated their GRI disclosures as the framework evolved in its years of existence. Furthermore, a score was assigned if the companies were participants of the SASSI Progress Report Initiative. The following South African fishing companies participated in this scheme: I&J (AVI Ltd's subsidiary), Pick and Pay Stores Ltd, Spar Group Ltd and Woolworths Ltd. This is a step forward in the shared responsibility vision of WWF-SASSI and more companies in the industry should be encouraged to join the scheme in order to improve the current state of biodiversity in the industry (SASSI, 2015).

6. Discussion and conclusion

6.1. Analysis

Biodiversity is clearly an important aspect of this industry and needs to be taken seriously in order to protect the current state of biodiversity for future generations (South African National Biodiversity Institute, 2014). The key aspect in this analysis shows how the biodiversity reporting themes and the subsequent results confirm the notion of organised hypocrisy. The operation of organised hypocrisy is evidenced in this study as many of the South African fish companies provide limited disclosures in terms of their biodiversity impact.

The quantitative results in Section 4.1 indicate limited biodiversity disclosures are presented by companies in the South African fishing industry, as can be seen by the low scores (Figures 1 and 2). Even though the scores in the integrated reports are higher than the corresponding scores in the sustainability reports, which is a positive sign for the qualitative results (Michelon et al., 2015), there is still a lack of detail surrounding biodiversity which is a worrying sign for an industry heavily reliant on natural resources.

Examining the results using the quantitative information, it can be seen that the scene-setting and risk themes were the worst performing themes. This is a worrying indicator for the South African fishing industry as these companies are failing to establish clearly or to identify the environmental context in which they are operating (see Samkin et al., 2014; Mansoor and Maroun, 2016). The lack of commitment to biodiversity and the low disclosure scores should result in highlighting the need to improve biodiversity disclosures in such an industry. Noting that the risk theme has poor disclosure scores should be a concern to regulators of the industry, as failing to disclose the fact that a loss of natural fish resources is a major risk to these companies' operations is a worrying sign (De Villiers and van Staden, 2011; Raemaekers et al., 2016).

Organised hypocrisy was exposed in the scene-setting disclosure theme as it was found that the South African fishing companies often provide broad statements with regards to their biodiversity impacts, without giving any details on their use of natural fish resources (see Section 5.1.1 for examples). This shows that these fish companies are more concerned with providing a policy

statement rather than a detailed action statement. The action behind biodiversity statements is important as the mere compliance with rules and regulations does not show how these companies are providing real feedback on their biodiversity impacts (Cho et al., 2015). Without the necessary action statements, it is difficult to assess whether the South African fishing industry is providing comfort to stakeholders with regards to the future state of biodiversity in the industry.

The results found that companies are willing to frame their biodiversity issues in a financial outlook which avoids the social and environmental impacts of their operations (for example, see Section 5.1.1). A major reason for the low biodiversity disclosures of these fish companies is the fact that they would rather provide limited information to avoid public scrutiny or media attention (see, for example, Deegan et al., 2002). The general statements made by the South African fishing companies further highlights organised hypocrisy as they are willing to talk about biodiversity without providing any action information to back up their statements. This is worrying for the industry, as without real action following the biodiversity-related 'talk', there is limited evidence that the current state of biodiversity will be maintained. An improvement needs to be made, through projects and initiatives undertaken by the companies in the South African fishing industry, in order for shareholders to understand that the overconsumption of fish resources needs to be examined to ensure the biodiversity of fish resources for future generations (van Liempd and Busch, 2013).

The qualitative results of this study further complement the notion of organised hypocrisy in the South African fishing industry seen in the low scores presented in the qualitative indicators. There are a number of weak indicators which suggest that these companies are more concerned with reflecting a responsible environmental image without any real action to validate for their efforts (see, for example, Section 4.2.2 and 4.2.3). The main results to analyse from the qualitative results are the fact that there are limited disclosures in the sections of the South African fishing companies integrated and sustainability reports which are of a high quality (see Section 4.2.2). Information was often presented in areas which did not matter to stakeholders or showed little commitment to improving the current level of biodiversity reporting. The awareness

around biodiversity in such an industry needs to be heightened, which can be done by providing greater detail in the biodiversity-related disclosures in the annual reports of South African fish companies.

6.2. Recommendations

There are many factors impacting biodiversity and a great amount of emphasis needs to be placed on this topic as the current biodiversity levels need to be maintained. For this to happen, regulators need to place an importance on holding biodiversity affecting companies accountable for their operations' impacts on the environment. In order for this to happen, companies need to be transparent with their stakeholders with regards to their biodiversity impact by disclosing how they plan to manage the decline of biodiversity in the industry (Grabsch et al., 2012).

The studies performed on biodiversity disclosures often found limited information presented, with details surrounding the matter being vague and lacking any action to address biodiversity impacts. It was found that many of the South African fish companies acknowledge that there is a risk of biodiversity diminishing in the country, but fail to describe any details surrounding the matter. A reason for this can be due to the fact that these companies would rather produce limited biodiversity information than disclose the negative environmental impact of their operations. Furthermore, many of the disclosures located are based on complying with various external reporting frameworks and avoiding opening themselves up for scrutiny.

Organised hypocrisy in the South African fishing industry has been evidenced during this study and needs to be addressed in order for biodiversity to be improved upon. Onus needs to be undertaken by the fish companies, the regulators of the industry and the stakeholders involved in order for the topic of biodiversity to be enhanced. Only through improved communication between the various parties can there be a greater emphasis placed on biodiversity in the industry. This notion limits the awareness of biodiversity in an industry which relies on natural fish resources which are being depleted at a fast rate. Without the necessary disclosures of biodiversity-related issues, the industry will suffer even more in the future. Vague biodiversity statements need to be removed by the South African fishing companies in order to move away

from organised hypocrisy. ‘Talk’ surrounding biodiversity improvements need to be followed up by action which will allow future generations to enjoy in the many benefits the South African fishing industry has to offer.

Partnerships with SASSI and many of the NGO’s is a key aspect which can improve the South African fishing industry’s biodiversity disclosures. By aligning their operations with these organisations, fish companies can report on their current biodiversity impact year-on-year. An increase in the involvement with NGO’s will improve the stewardship of the South African fishing industry as these companies will be held accountable for their interactions with the environment (De Villiers and van Staden, 2011).

The disclosures on training and educating stakeholders were often in the reports of the South African fish companies. These disclosures are vital in the context of lessening biodiversity impacts as current and future stakeholders need to be made aware of how to curb the effects of overfishing. Furthermore, the disclosure of performance indicators to stakeholders will allow them to be made aware of the how these South African fishing companies are affecting the environment every year. In order to save the current levels of biodiversity, disclosures such as the above need to be improved upon.

A stringent plan needs to be in place within the company to address biodiversity issues that employees or stakeholders might have. Regulators should enforce this communication, as through this, there can be an officer to assist with enquiries into the companies’ environmental impacts and ensure their operations are viable into the future. Although many of the South African fishing companies use the GRI as an environmental reporting framework, it is not enough to show any real action in terms of their biodiversity improvements.

6.3. Limitations and future research

Limitations:

- This study focuses on a specific sector affecting the biodiversity of South Africa, namely the fishing industry. The results from this study cannot be generalised across other

sectors, however, this leaves an opportunity to expand into further biodiversity-affecting sectors.

- This research only focused on the integrated and sustainability reports, as these were determined to be the main form of communication with stakeholders and hold the most pertinent information.
- There was an element of researcher bias when evaluating and assessing whether a biodiversity related disclosure warranted a score or not.
- The research did not involve the engagement with relevant stakeholders with regards to biodiversity related issues which is a limitation which could be dealt with in future research on this topic.

Future research:

- As evidenced in this study, there is a distinct lack of biodiversity disclosures in the South African fishing industry and this is an important area of research. Biodiversity is a topic which should be further examined in order to assess whether progress in the field has been made. Research needs to be conducted for biodiversity to be widely known.
- The study allows for an expansion of this topic into different biodiversity relating sectors and other countries which are heavily reliant on natural resources. More research on biodiversity will enhance the importance of the topic across other sectors and countries affected by the decline of biodiversity.
- Due to the limited sources of information used in this study, the inclusion of additional forms of communication with stakeholders can be introduced into future research. This would allow for a more detailed analysis of how companies communicate their biodiversity impacts with their various stakeholders.
- Direct engagement with stakeholders should be included in such a study to assess the usefulness of biodiversity disclosures to users of the financial statements. This would be an important element to include as it would allow for the views of stakeholders to form part of the analysis of whether sufficient attention is being paid to biodiversity in their industries.

7. Appendix

Table 14: Disclosure collection template

Company name: ……..

Disclosure Theme	Integrated Report			Section within IR			Sustainability Report		
	2015	2014	2013	2015	2014	2013	2015	2014	2013
Scene-setting (policy)									
Species-related (policy)									
Social engagements (action)									
Stakeholder engagements (action)									
Performance evaluations (action)									
Risk (policy)									
Internal management (action)									
External reports (policy)									

8. REFERENCES

Abrahamson, E. & Baumard, P. 2008. What lies behind organizational façades and how organizational façades lie: An untold story of organizational decision making. *The Oxford handbook of organizational decision making*, 437-452.

Adams, C. A. 2004. The ethical, social and environmental reporting-performance portrayal gap. *Accounting, Auditing & Accountability Journal,* 17 (5), 731-757.

Atkins, J., Barone, E., Maroun, W. & Atkins, B. 2016. *Bee accounting and accountability in the UK,* Sheffield, UK, Greenleaf Publishering Limited.

Atkins, J. & Maroun, W. 2014. South African institutional investors' perceptions of integrated reporting. *ACCA.* London: The Association of Chartered Certified Accountants.

Atkins, J. & Maroun, W. 2015. Integrated reporting in South Africa in 2012: Perspectives from South African institutional investors. *Meditari Accountancy Research,* 23 (2), 197-221.

Beams, F. A. & Fertig, P. E. 1971. Pollution control through social cost conversion. *Journal of Accountancy (pre-1986),* 132 (000005), 37.

Bebbington, J., Unerman, J. & O'Dwyer, B. 2014. *Sustainability accounting and accountability*, Routledge.

Beck, A. C., Campbell, D. & Shrives, P. J. 2010. Content analysis in environmental reporting research: Enrichment and rehearsal of the method in a British–German context. *The British Accounting Review,* 42 (3), 207-222.

Beretta, S. & Bozzolan, S. 2004. A framework for the analysis of firm risk communication. *The International Journal of Accounting,* 39 (3), 265-288.

Berthelot, S., Coulmont, M. & Serret, V. 2012. Do investors value sustainability reports? A Canadian study. *Corporate Social Responsibility and Environmental Management,* 19 (6), 355-363.

Boiral, O. 2013. Sustainability reports as simulacra? A counter-account of A and A+ GRI reports. *Accounting, Auditing & Accountability Journal,* 26 (7), 1036-1071.

Brand, F. 2009. Critical natural capital revisited: Ecological resilience and sustainable development. *Ecological economics,* 68 (3), 605-612.

Brennan, N. & Merkl-Davies, D. 2014. Rhetoric and argument in social and environmental reporting: the Dirty Laundry case. *Accounting, Auditing & Accountability Journal,* 27 (4), 602-633.

Brookbanks, A. 2012. *Overfishing in SA* [Online]. Live Eco. Available: http://www.liveeco.co.za/2012/06/04/overfishing-in-sa/ [Accessed 25 February 2017].

Carels, C., Maroun, W. & Padia, N. 2013. Integrated reporting in the South African mining sector. *Corporate Ownership and Control,* 11 (1), 991-1005.

Chen, J. C. & Roberts, R. W. 2010. Toward a more coherent understanding of the organization–society relationship: A theoretical consideration for social and environmental accounting research. *Journal of Business Ethics,* 97 (4), 651-665.

Cho, C. H., Laine, M., Roberts, R. W. & Rodrigue, M. 2015. Organized hypocrisy, organizational façades, and sustainability reporting. *Accounting, Organizations and Society,* 40, 78-94.

Cho, C. H., Roberts, R. W. & Patten, D. M. 2010. The language of US corporate environmental disclosure. *Accounting, Organizations and Society,* 35 (4), 431-443.

Christensen, L. T., Morsing, M. & Thyssen, O. 2013. CSR as aspirational talk. *Organization,* 20 (3), 372-393.

Dasgupta, P. & Heal, G. 1974. The optimal depletion of exhaustible resources. *The review of economic studies,* 41, 3-28.

De Villiers, C., Hsiao, K. & Maroun, W. 2017. Developing a Conceptual Model of influences around Integrated Reporting, New Insights, and Directions for Future Research. *Meditari Accountancy Research,* In press, Forthcomming.

De Villiers, C. & van Staden, C. J. 2006. Can less environmental disclosure have a legitimising effect? Evidence from Africa. *Accounting, Organizations and Society,* 31 (8), 763-781.

De Villiers, C. & van Staden, C. J. 2011. Where firms choose to disclose voluntary environmental information. *Journal of Accounting and Public Policy,* 30 (6), 504-525.

Deegan, C., Rankin, M. & Tobin, J. 2002. An examination of the corporate social and environmental disclosures of BHP from 1983-1997: A test of legitimacy theory. *Accounting, Auditing & Accountability Journal,* 15 (3), 312-343.

Department of Agriculture Forestry and Fisheries. 2017. *Vision and Mission* [Online]. Available: http://www.daff.gov.za/daffweb3/About-Us/Vision-and-Mission [Accessed 7 January 2017].

Department of Agriculture Forestry and Fisheries. 2014. *STATUS OF THE SOUTH AFRICAN MARINE FISHERY RESOURCES* [Online]. Cape Town, South Africa. Available: http://www.nda.agric.za/doaDev/sideMenu/fisheries/03_areasofwork/Resources%20Research/STATUS%20OF%20THE%20SOUTH%20AFRICAN%20MARINE%20FISHERY%20RESOURCES%202014%20WEB.pdf [Accessed 20 November 2016].

Des Jardins, J. R. 2012. *Environmental ethics*, Nelson Education.

Dube, S. & Maroun, W. 2017. Corporate social responsibility reporting by South African mining companies: Evidence of legitimacy theory. *South African Journal of Business Management,* Forthcomming.

Earthwatch Institute 2002. Business and Biodiversity: The Handbook of Corporate Action, Earthwatch Institute (Europe). *Gevena: International Union for Conservation of Nature and Natural Resources, World Business Council for Sustainable Development*.

European Commission. 2015. *Fisheries, TACs and quotas* [Online]. Available: http://ec.europa.eu/fisheries/cfp/fishing_rules/tacs/index_en.htm [Accessed 24 June 2015].

Global Reporting Initiative. 2007. *Biodiversity: A GRI Reporting Resource* [Online]. Available: https://www.globalreporting.org/resourcelibrary/Biodiversity-A-GRI-Resource-Document.pdf [Accessed 19 June 2015].

Global Reporting Initiative. 2013. The sustainability content of integrated reports–a survey of pioneers. URL: https://www. globalreporting. org/resourcelibrary/GRI-IR. pdfs [consulted on 20 July 2013].

Global Reporting Initiative. 2016. *GRI 304: BIODIVERSITY* [Online]. Global Sustainability Standards Board (GSSB). Available: https://www.globalreporting.org/standards/gri-standards-download-center/?g=201b7ad9-496b-4083-877b-267ca371fb35 [Accessed 10 January 2017].

Global Reporting Initiative. 2017. *About GRI* [Online]. Available: https://www.globalreporting.org/information/about-gri/Pages/default.aspx [Accessed 10 January 2017].

Government Communications. 2012. *Pocket Guide to South Africa 2012/13* [Online]. Available: http://www.gcis.gov.za/sites/www.gcis.gov.za/files/docs/resourcecentre/pocketguide/2012/03%20Agriculture.pdf [Accessed].

Grabsch, C., Jones, M. J. & Solomon, J. F. 2012. Accounting for biodiversity in crisis: A European Perspective: working paper. London: Kings College.

Gray, R., Kouhy, R. & Lavers, S. 1995. Corporate social and environmental reporting: a review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing & Accountability Journal,* 8 (2), 47-77.

Guthrie, J. & Parker, L. D. 1989. Corporate Social Reporting: A Rebuttal of Legitimacy Theory. *Accounting and Business Research,* 19 (76), 343-352.

Henriques, I. & Sadorsky, P. 1996. The determinants of an environmentally responsive firm: An empirical approach. *Journal of environmental economics and management,* 30 (3), 381-395.

Higgins, C. & Walker, R. 2012. Ethos, logos, pathos: Strategies of persuasion in social/environmental reports. *In:* Accounting Forum, 2012. Elsevier, 194-208.

Hopwood, A. G. 2009. Accounting and the environment. *Accounting, Organizations and Society,* 34 (3–4), 433-439.

Husillos, J., Larrinaga, C. & A´lvarez, M. J. 2011. The emergence of triple bottom line reporting in Spain. Spain: Revista Espan˜ola de Financiacio´n y Contabilidad.

Institute of Directors South Africa 2013. *King Report on Governance for South Africa,* South Africa, LexisNexis.

Integrated Reporting & Assurance Services. 2012. *KING III & GRI +13: 2012 Review of Sustainability Reporting in South Africa as per the Global Reporting Initiative (GRI) Guidelines* [Online]. Available: http://www.iras.co.za/Documents/Research/King_III_and_GRI_13_Research_Report.pdf [Accessed 10 January 2017].

Integrated Reporting South Africa. 2015. *STANDARDS FOR SUSTAINABILITY REPORTING* [Online]. Available: http://www.integratedreportingsa.org/SustainabilityReporting/StandardsandGuidelines.aspx [Accessed 3 April 2015].

International Integrated Reporting Council. 2013. CAPITALS BACKGROUND PAPER FOR <IR>.

Jackson, J. B., Kirby, M. X., Berger, W. H., Bjorndal, K. A., Botsford, L. W., Bourque, B. J., Bradbury, R. H., Cooke, R., Erlandson, J. & Estes, J. A. 2001. Historical overfishing and the recent collapse of coastal ecosystems. *science,* 293 (5530), 629-637.

Johannesburg Stock Exchange. 2015. *JSE Listing Requirements* [Online]. Available: https://www.jse.co.za/content/JSEEducationItems/Service%20Issue%2017.pdf [Accessed 19 June 2015].

Jones, M. J. & Solomon, J. F. 2013. Problematising accounting for biodiversity. *Accounting, Auditing & Accountability Journal,* 26 (5), 668-687.

Jowit, J. 2008. World is facing a natural resources crisis worse than financial crunch. *Guardian2008*.

Krasner, S. D. 1999. *Sovereignty: organized hypocrisy*, Princeton University Press.

Leedy, P. D. & Ormrod, J. E. 2013. Practical Research Planning and Design (Tenth Edition ed.). *United States of America: Pearson Education Inc.*

Lindemann-Matthies, P. & Bose, E. 2008. How many species are there? Public understanding and awareness of biodiversity in Switzerland. *Human Ecology,* 36 (5), 731-742.

Lipson, M. 2007. Peacekeeping: Organized Hypocrisy? *European Journal of International Relations,* 13 (1), 5-34.

Malsch, B. 2013. Politicizing the expertise of the accounting industry in the realm of corporate social responsibility. *Accounting, Organizations and Society,* 38 (2), 149-168.

Mannion, D. A. 2014. *Global environmental change: a natural and cultural environmental history*, Routledge.

Mansoor, H. 2016. *Biodiversity reporting in South Africa: corporate disclosures in the mining and food sectors.*

Mansoor, H. & Maroun, W. 2016. An initial review of biodiversity reporting by South African corporates: The case of the food and mining sectors. *South African Journal of Economic and Management Sciences,* 19 (4), 592-614.

Marine Stewardship Council. 2015. *Marine Stewardship Council - Certified sustainable seafood* [Online]. Available: https://www.msc.org/ [Accessed 3 April 2015].

Maroun, W. 2012a. Interpretive and critical research: Methodological blasphemy! *African Journal of Business Management,* 6 (1), 1-6.

Maroun, W. 2012b. Interpretive and critical research: Methodological blasphemy! *African Journal of Business Management,* 6 (1), 1.

Maroun, W. 2016. *No bees in their bonnet: On the absence of bee-reporting by South African listed companies,* Sheffield, UK, Greenleaf Publishing Limited.

Maroun, W. 2017. Assuring the integrated report: Insights and recommendations from auditors and preparers. *The British Accounting Review,* 49 (3), 329-346.

Maroun, W. & Jonker, C. 2014. Critical and interpretive accounting, auditing and governance research in South Africa. *Southern African Journal of Accountability and Auditing Research,* 16, 51-62.

McKinsey & Company. 2011. *Resource revolution: Meeting the world's energy, materials, food, and water needs* [Online]. Available: http://www.mckinsey.com/insights/energy_resources_materials/resource_revolution [Accessed 19 June 2015].

McNally, M.-A., Cerbone, D. & Maroun, W. 2017. Exploring the challenges of preparing an integrated report. *Meditari Accountancy Research,* 25 (4), Forthcoming.

Meyer, J. W. & Rowan, B. 1977. Institutionalized organizations: Formal structure as myth and ceremony. *American journal of sociology*, 340-363.

Michelon, G., Pilonato, S. & Ricceri, F. 2015. CSR reporting practices and the quality of disclosure: An empirical analysis. *Critical Perspectives on Accounting,* 33, 59-78.

Milne, M. J. & Gray, R. 2013. W (h) ither ecology? The triple bottom line, the global reporting initiative, and corporate sustainability reporting. *Journal of business ethics,* 118 (1), 13-29.

Myers, R. A. & Worm, B. 2003. Rapid worldwide depletion of predatory fish communities. *Nature,* 423 (6937), 280-283.

NGO. 2017. *DEFINITION OF NGOs* [Online]. Available: http://www.ngo.org/ngoinfo/define.html [Accessed 7 January 2017 2017].

Patten, D. M. 1995. *Variability in social disclosure: A legitimacy-based analysis*.

Patten, D. M. 2012. White tigers, zoos and sustainability reporting: A cynical reflection. *Social and Environmental Accountability Journal,* 32 (1), 17-25.

Petersen, S. 2016. *Marine Environment* [Online]. Enviropedia. Available: http://www.enviropaedia.com/topic/default.php?topic_id=155 [Accessed 24 November 2016].

Planet Earth Herald. 2016a. *No Fish Left In 50 Years From Now* [Online]. Available: http://planetearthherald.com/no-fish-left-in-50-years-from-now/ [Accessed 27 March 2016].

Planet Earth Herald. 2016b. *Top 10 Environmental Issues* [Online]. Available: http://planetearthherald.com/top-10-environmental-issues/ [Accessed 25 March 2016].

Ponte, S. 2008. Greener than thou: The political economy of fish ecolabeling and its local manifestations in South Africa. *World Development,* 36 (1), 159-175.

Raar, J. 2011. Biodiversity and accounting? *Centre for Social & Environmental Accounting Research*.

Raemaekers, K. & Maroun, W. 2014. Trends in risk disclosure: Practices of South African listed companies. *Accounting Perspectives in Southern Africa,* 2 (1), 8-15.

Raemaekers, K., Maroun, W. & Padia, N. 2016. Risk disclosures by South African listed companies post-King III. *South African Journal of Accounting Research,* 30 (1), 41-60.

RFA 2011. About us.

Rimmel, G. & Jonäll, K. 2013. Biodiversity reporting in Sweden: corporate disclosure and preparers' views. *Accounting, Auditing & Accountability Journal,* 26 (5), 746-778.

SAICA. 2015. *Integrated Reporting* [Online]. Available: https://www.saica.co.za/Technical/IntegratedReporting/IntegratedReporting/tabid/1653/language/en-ZA/Default.aspx [Accessed 19 June 2015].

Samkin, G., Schneider, A. & Tappin, D. 2014. Developing a reporting and evaluation framework for biodiversity. *Accounting, Auditing & Accountability Journal,* 27 (3), 527-562.

SASSI 2014. SASSI Participants Report.

SASSI. 2015. *SASSI Participants Report* [Online]. Available: http://awsassets.wwf.org.za/downloads/sassi_participants_report_web.pdf [Accessed 18 April 2016].

SASSI 2016. How SASSI Helps.

SASSI 2017. The SASSI List.

Schultz, P. W. 2001. The structure of environmental concern: Concern for self, other people, and the biosphere. *Journal of environmental psychology,* 21 (4), 327-339.

Schutt, R. K. 2014. *Investigating the social world: The process and practice of research*, Sage Publications.

Shah, A. 2002. Corporations and the Environment. Global Issues.

Shields, P. M. & Rangarajan, N. 2013. *A playbook for research methods: Integrating conceptual frameworks and project management*, New Forums Press.

Smith, K. 2013. *Environmental hazards: assessing risk and reducing disaster*, Routledge.

Solomon, J. & Maroun, W. 2012. Integrated reporting: the influence of King III on social, ethical and environmental reporting.

Solomon, J. F., Solomon, A., Joseph, N. L. & Norton, S. D. 2013. Impression management, myth creation and fabrication in private social and environmental reporting: Insights from Erving Goffman. *Accounting, organizations and society,* 38 (3), 195-213.

South African National Biodiversity Institute. 2013. *Life: the state of South Africa's biodiversity 2012* [Online]. South African National Biodiversity Institute, Pretoria. Available: https://www.environment.gov.za/sites/default/files/docs/publications/lifes_statebiodiversity2012_report.pdf [Accessed].

South African National Biodiversity Institute. 2014. *SANBI Biodiversity for life* [Online]. Available: http://www.sanbi.org/ [Accessed 18 June 2015].

South African National Biodiversity Institute. 2017. *About SANBI* [Online]. Available: http://www.sanbi.org/about [Accessed 7 January 2017].

Spar, D. L. & La Mure, L. T. 2003. The power of activism: Assessing the impact of NGOs on global business. *California Management Review,* 45 (3), 78-101.

Steenkamp, N. & Northcott, D. 2007. Content analysis in accounting research: the practical challenges. *Australian Accounting Review,* 17 (3), 12.

Suchman, M. C. 1995. Managing legitimacy: Strategic and institutional approaches. *Academy of management review,* 20 (3), 571-610.

The International Integrated Reporting Council. 2013. International Integrated Reporting Framework. International Integrated Reporting Council ('the IIRC').

The International Integrated Reporting Council. 2015. *Integrated Reporting South Africa* [Online]. Available: http://www.integratedreportingsa.org/IntegratedReporting/TheInternationalIntegratedReportingCouncil.aspx [Accessed 19 June 2015].

Thomas, D. S. & Twyman, C. 2005. Equity and justice in climate change adaptation amongst natural-resource-dependent societies. *Global environmental change,* 15 (2), 115-124.

Tregidga, H., Milne, M. & Kearins, K. 2014. (Re) presenting 'sustainable organizations'. *Accounting, Organizations and Society,* 39 (6), 477-494.

van Liempd, D. & Busch, J. 2013. Biodiversity reporting in Denmark. *Accounting, Auditing & Accountability Journal,* 26 (5), 833-872.

Vitousek, P. M. 1994. Beyond global warming: ecology and global change. *Ecology,* 75 (7), 1861-1876.

World Health Organization. 2016. *Biodiversity* [Online]. Available: http://www.who.int/globalchange/ecosystems/biodiversity/en/ [Accessed 27 March 2016].

World Wild Life. 2017. *Threats* [Online]. Washington, DC: World Wildlife Fund. Available: http://www.worldwildlife.org/threats [Accessed 28 January 2017].

Worm, B., Hilborn, R., Baum, J. K., Branch, T. A., Collie, J. S., Costello, C., Fogarty, M. J., Fulton, E. A., Hutchings, J. A. & Jennings, S. 2009. Rebuilding global fisheries. *science,* 325 (5940), 578-585.

WWF. 2016. *How does Biodiversity loss affect me and everyone else?* [Online]. Available: http://wwf.panda.org/about_our_earth/biodiversity/biodiversity_and_you/ [Accessed 27 March 2016].

WWF South Africa. 2017. *Our Goals* [Online]. Available: http://www.wwf.org.za/what_we_do/our_goals/ [Accessed 7 January 2017].