



Cape Environmental Assessment Practitioners (Pty) Ltd

Reg. No. 2008/004627/07

Telephone: (044) 874 0365
Facsimile: (044) 874 0432
Web: www.cape-eaprac.co.za

1st Floor Eagles View Building
5 Progress Street, George
PO Box 2070, George, 6530

DRAFT SCOPING REPORT & PLAN OF STUDY FOR EIR

ALGOA BAY SEA-BASED AQUACULTURE DEVELOPMENT ZONES PORT ELIZABETH

In terms of the **National Environmental Management Act**
(NEMA, Act 107 of 1998, as amended)



Prepared for the Applicant: **Department of Agriculture, Forestry and Fisheries (DAFF)**

By: **Cape Environmental Assessment Practitioners (Cape EAPrac)**

Ref: **NMM101/05** DEA Ref: **12/12/20/2181** Case officer: **Nyiko Ngoveni**

Submitted for: **Public Review & Comment**

Date: **1 March 2012**

DRAFT SCOPING REPORT

ALGOA BAY SEA-BASED AQUACULTURE DEVELOPMENT ZONES PORT ELIZABETH

In terms of the **National Environmental Management Act**
(NEMA, Act 107 of 1998, as amended)

Submitted for:

Public Review & Comment

This report is the property of the Department of Agriculture, Forestry and Fisheries (DAFF), who may publish it, in whole, provided that:

- *Cape EAPrac* is acknowledged as the author in the any subsequent publication;
- That *Cape EAPrac* is indemnified against any claim for damages that may result from any publication of specifications, recommendations or statements that is not administered or controlled by *Cape EAPrac*;
- The contents of this report, including specialist/consultant reports, may not be used for purposes of sale or publicity or advertisement without the prior written approval of DAFF.
- *Cape EAPrac* accepts no responsibility by the Applicant/Client for failure to follow or comply with the recommended programme, specifications or recommendations contained in this report.
- *Cape EAPrac* accepts no responsibility for deviation or non-compliance of any specifications or recommendations made by specialists or consultants whose input/reports are used to inform this report.

Report Issued by:

Cape Environmental Assessment Practitioners

Tel: 071 603 4132
Fax: 086 653 2873
Web: www.cape-eaprac.co.za

PO Box 2070
5 Progress Street
George 6530

REPORT DETAILS

Title:	DRAFT SCOPING REPORT for proposed Algoa Bay Sea-Based Aquaculture Development Zones
Purpose of this report:	This Draft Scoping Report forms part of a series of reports and information sources that are being provided during the Environmental Impact Assessment (EIA) for the proposed Aquaculture Development Zones in the Eastern Cape Province. In accordance with the EIA Regulations, the purpose of the Scoping Report is to: • Provide a description of the proposed project, including a sufficient level of detail to enable stakeholders to identify relevant issues and concerns; • Describe the local environmental and developmental context within which the project is proposed, to assist further identifying issues and concerns; • Provide an overview of the process being followed in the Scoping Phase, in particular the public participation process, as well as present the Plan of Study for EIA that would be followed in the subsequent EIA phase; • Present the issues and concerns identified to date from the baseline specialist studies and the initial stakeholder engagement process, as well as an explanation of how these issues will be addressed through the EIA process. This Draft Scoping Report is made available to all stakeholders for a 40 day review & comment period, 1 March to 12 April 2012.
Prepared for:	Department of Agriculture, Forestry and Fisheries (DAFF).
Published by:	<i>Cape Environmental Assessment Practitioners (Pty) Ltd. (Cape EAPrac)</i>
Author:	Ms Melissa Mackay (National Diploma in Nature Conservation with five years' experience as an EAP)
Reviewed by:	Director: Ms Louise-Mari van Zyl (MA Geography & Environmental Science [US]; Registered Environmental Assessment Practitioner with the Interim Certification Board for Environmental Assessment Practitioners of South Africa, (EAPSA); on the Committee of the Southern Cape International Association for Impact Assessments (IAIA). Ms van Zyl has over ten years' experience as an EAP).
Cape EAPrac Ref:	NMM101/05
DEA Case officer & Ref. No:	Nyiko Ngoveni 12/12/20/2181
Date:	February 2012
To be cited as:	<i>Cape EAPrac</i> , 2011. Draft Scoping Report for the proposed Algoa Bay Sea-Based Aquaculture Development Zones. Report Reference: NMM101/05. George, South Africa.

COMPLIANCE CHECKLIST:

Regulation 543 of NEMA, Section 28(2): “*Contents of a Scoping Report*”.

The following is included as a “route map” for stakeholders and officials considering and reviewing this report. It contains the minimum requirements for an environmental impact report and guides the reader to the relevant pages where specific aspects are detailed:

	Requirement	Page Reference
(a)	Details of the EAP who compiled the report and the expertise of the EAP to carry out an EIA.	Report Details
(b)	Detailed description of the proposed activity.	9 - 11
(c)	Description of any feasible and reasonable alternatives that have been identified.	11 - 14
(d)	Description of the property on which the activity is to be undertaken and the location of the activity on the property.	10
(e)	Description of the environment that may be affected by the activity and the manner in which the activity may be affected by the environment.	20 – 26
(f)	Identification of all legislation and guidelines that have been considered in the preparation of the scoping report.	3 – 9
(g)	Description of environmental issues and potential impacts, including cumulative impacts that have been identified.	26 -28
(h)	Details of the public participation process: 1. Steps undertaken to notify potentially interested and affected parties of the application; 2. Proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the application have been displayed, placed or given; 3. List of persons, organizations and organs of state that were identified and registered as interested & affected parties 4. Summary of issues raised by interested and affected parties, the date of receipt and the response of the EAP to those issues.	27 Appendix D
(i)	Description of the need & desirability of the proposed activity.	16 - 17
(j)	A description of potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity.	11 – 14 20 - 27
(k)	Copies of any representations and comments received in connection with the application or the scoping report from interested and affected parties.	Appendix D
(l)	Copies of the minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants.	Appendix D
(m)	Any responses by the EAP to those representations and comments and views.	Appendix D
(n)	A Plan of Study (POS) for environmental impact assessment which sets out the proposed approach to the environmental impact assessment of the activity, which must include: 1. Description of the tasks that will be undertaken as part of the	32 – 35

	environmental impact process, including any specialist reports or processes, and the manner in which they will be undertaken. 2. An indication of the stages at which the competent authority will be consulted; 3. Description of the proposed method of assessing environmental issues and alternatives, including the option of not proceeding with the activity; 4. Particulars of the public participation process that will be conducted during the environmental impact assessment process.	
(o)	Any specific information required by the competent authority.	Not Applicable
(s)	Any other matters required in terms of Sections 24(4)(a) and (b) of the Act.	To be determined

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
1 INTRODUCTION	I
2 NEED AND DESIRABILITY	I
3 ENVIRONMENTAL REQUIREMENTS	I
4 SITE DESCRIPTION	II
5 DEVELOPMENT PROPOSAL & ALTERNATIVES	III
5.1 Alternative One – Algoa 2 and 3 (Preferred)	iii
5.2 Alternative Two – Algoa 1	iii
5.3 Alternative Three – St Francis 1 and 2	iii
5.4 Status Quo Alternative (No Go)	iii
6 SPECIALIST STUDIES	IV
7 PLANNING CONTEXT	IV
8 PROCESS TO DATE	IV
9 CONCLUSIONS & RECOMMENDATIONS	V
DRAFT SCOPING REPORT	1
1 INTRODUCTION	1
2 MARINE AQUACULTURE	1
2.1 History of Marine Aquaculture in South Africa	2
3 LEGAL & PROCESS REQUIREMENTS	3
3.1 The Constitution of the Republic of South Africa	3
3.2 National Environmental Management Act (NEMA, Act 107 of 1998)	3
3.3 National Environmental Management: Waste Act (Act 59 of 2008)	5
3.4 National Environmental Management: Biodiversity Act (NEM:BA, Act 10 of 2004)	5
3.5 National Heritage Resources Act (NHRA, Act 25 of 1999)	5
3.6 National Water Act (Act 36 of 1998)	6
3.7 National Environmental Management: Integrated Coastal Management Act (NEM:ICMA, Act 24 of 2008)	7
3.8 Relevant Regulations and Guidelines	8
4 BROAD CONTEXT	9
5 SITE DESCRIPTION	10
6 DEVELOPMENT CONCEPT & ALTERNATIVES	11
6.1 Alternative One – Algoa 2 and 3 (Preferred)	13
6.2 Alternative Two – Algoa 1	13
6.3 Alternative Three – St Francis 1 and 2	13
6.4 Status Quo Alternative (No Go)	14
7 INFRASTRUCTURE OVERVIEW	14
8 NEED AND DESIRABILITY OF THE ACTIVITY	16
8.1 Need (timing):	16
8.2 Desirability (place):	17
9 POLICY & PLANNING	18
10 PROFESSIONAL TEAM	18
11 ASSUMPTIONS & LIMITATIONS	19
12 SPECIALIST STUDIES	20
12.1 Marine	20
12.2 Visual	21

12.2.1	Landscape Context.....	21
12.2.2	Preliminary Conclusion	23
12.3	Socio-Economic	24
12.3.1	Study Approach	24
12.3.2	Performance assessment of the Port Elizabeth Metro economy	25
12.3.3	Need for Aquaculture.....	26
12.3.4	Possible Impacts	26
13	PUBLIC PARTICIPATION.....	27
13.1	Potential Issues & Concerns.....	28
14	PLAN OF STUDY FOR ENVIRONMENTAL IMPACT REPORT	32
14.1	Criteria for Specialist Assessment of Impacts.....	32
14.2	Brief for Specialist Studies to be undertaken as Part of the EIA.....	34
15	PROCESS TO BE FOLLOWED.....	35
16	CONCLUSIONS.....	36
17	REFERENCES.....	37

FIGURES

Figure 1	Summary of Scoping & EIA process
Figure 2	Schematic diagram of sea-based fish cages
Figure 3	Illustration of the methodology used to provide specialist socio-economic input for the EIA process

TABLES

Table 1	NEMA 2010 listed activities triggered the Algoa Bay Sea-based Aquaculture
---------	---

PLATES

Plate 1	Sea weed production at Danger Point
Plate 2	Juvenile Abalone
Plate 3	Thermister being deployed
Plate 4	Acoustic Doppler Current Profiler being deployed
Plate 5	Floating Finfish cage
Plate 6	JPS Industries cage
Plate 7	Example of a high tech fish farm
Plate 8	Fish cage off White Island, USA
Plate 9	Coega Harbour
Plate 10	Coega Harbour
Plate 11	Port Elizabeth Harbour
Plate 12	Port Elizabeth Hotels
Plate 13	Jeffery's Bay
Plate 14	Jeffery's Bay beach

APPENDICES

Appendix A	Strategic Environmental Assessment
Appendix B	Location Map
Appendix C	Specialist Scoping Reports
Annexure C1	Baseline Marine Report
Annexure C2	Baseline Visual Assessment Report
Annexure C3	Baseline Socio-Economic
Appendix D	Public Participation Process
Annexure D1	Initial Public Participation
Annexure D2	List of Interested and Affected Parties (I&APs)
Annexure D3	Issues and Responses Table
Annexure D4	Advert and notification letter for Draft Scoping Report (DSR)

ABBREVIATIONS

ADCP	Acoustic Doppler Current Profiler
ADZ	Aquaculture Development Zone
BGIS	Biodiversity Geographic Information System
CBD	Central Business District
ACMP	Archaeological Conservation Management Plan
CDSM	Chief Directorate Surveys and Mapping
CEMP	Construction Environmental Management Programme
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEAET	Department of Economic Development, Environmental Affairs and Tourism
DEA&DP	Department of Environmental Affairs and Development Planning
DEIR	Draft Environmental Impact Report
DSR	Draft Scoping Report
FEIR	Final Environmental Impact Report
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EHS	Environmental, Health & Safety
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
KOP	Key Observation Point
LUDS	Land Use Decision Support
LUPO	Land Use Planning Ordinance
MADZ	Marine Aquaculture Development Zones
NEMA	National Environmental Management Act
NEMAA	National Environmental Management Amendment Act
NEM:BA	National Environmental Management: Biodiversity Act
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act
NID	Notice of Intent to Develop
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act
SAHRA	South African National Heritage Resources Agency
SANBI	South Africa National Biodiversity Institute
SANS	South Africa National Standards
SDF	Spatial Development Framework
SMME	Small, Medium and Micro Enterprise
VIA	Visual Impact Assessment

EXECUTIVE SUMMARY

1 INTRODUCTION

Cape Environmental Assessment Practitioners (Pty) Ltd (Cape EAPrac) has been appointed by the national **Department of Agriculture, Forestry and Fisheries (DAFF)**, hereafter referred to as the Applicant, as the independent environmental assessment practitioner to facilitate the Scoping & Environmental Impact Assessment (EIA) process required in terms of the National Environmental Management Act (NEMA, Act 107 of 1998) for the proposed development of **Sea-based Aquaculture Development Zones (ADZs)** in Algoa Bay near Port Elizabeth.

The **DAFF: Directorate Sustainable Aquaculture Management**, proposes to develop various sea-based Aquaculture Development Zones (ADZs) within which individual **Finfish Marine Aquaculture projects** (marine aquaculture = sea farming) could be considered along the **Eastern Cape** coastline. The decision to investigate sites along the Eastern Cape coast is based on the outcome of a **Strategic Environmental Assessment (SEA)** undertaken for the South African coastline as a whole, highlighting the Eastern Cape as an area with potential for ADZs. A copy of the SEA is included in **Appendix A** of this report.

The project involves the development of sea-based marine aquaculture zones for the farming of finfish in cages.

2 NEED AND DESIRABILITY

The Department of Environmental Affairs & Tourism (DEAT), Branch Marine and Coastal Management completed a Strategic Environmental Assessment (SEA) aimed at identifying suitable land and sea space surrounding South Africa's coastal provinces for the establishment of Aquaculture Development Zones (ADZs) in 2009. The purpose of establishing the ADZs was to encourage investor and consumer confidence in the marine aquaculture industry in South Africa, and also to create incentives for industry development, provide marine aquaculture services, manage risk associated with aquaculture, and provide skills development and employment for coastal communities.

Four sea-based sites were selected in the Eastern Cape as a first phase in establishing ADZs in South Africa. These were Algoa Bay, Shelly Beach, St Francis Bay and Point St Francis. In 2010, the Directorate Sustainable Aquaculture Management: Aquaculture Animal Health and Environmental Interactions, in the Department of Agriculture, Forestry and Fisheries (DAFF), called for proposals from suitably qualified service providers to undertake an Environmental Impact Assessment (EIA) for the development of these ADZs specifically for marine fin fish cage aquaculture, which is relatively new to South Africa.

According to Bloom (2012), the long-term forecast for the demand for food remains positive, driven by population growth and urbanization. In particular, demand for fish products is expected to continue to rise in the coming decades. However, future increases in per capita fish consumption will depend on the availability of fishery products. Major increases in fish food production are forecasted to come from aquaculture, while production from capture fisheries stagnates.

3 ENVIRONMENTAL REQUIREMENTS

The proposed ADZ is subject to the requirements of the Environmental Impact Assessment Regulations (2010 EIA Regulations) in terms of the **National Environmental Management Act**

(NEMA, Act 107 of 1998, as amended)¹. This Act makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the national Department of Environmental Affairs, DEA) based on the findings of an EIA. An application for authorisation has been accepted by the DEA (under the Application Reference number **12/12/20/2181**).

A Scoping and Environmental Impact Assessment process is required in terms of NEMA, 2010. The listed activities associated with the proposed development, as stipulation under Regulations 544, 545 and 546, are as follows:

Regulation 544 (Basic Assessment): 7, 14, 1 and 18;

Regulation 545 (Scoping & EIA): 13

Before any of the above mentioned listed activities may be undertaken, authorisation must be obtained from the relevant authority, in this case, the **National Department of Environmental Affairs** (DEA).

4 SITE DESCRIPTION

Algoa Bay and St Francis Bay are located on the south eastern coast of South Africa. Port Elizabeth is the largest city in the area, and provides the economic hub for both Algoa and St Francis Bays.

The proposed marine aquaculture (mariculture) sites in this area were identified in the 2011 SEA (Clark et al) as two prospective sites for the development. In the SEA, site selections were considered using the following criteria:

- Distance from a suitable port.
- Water depth.
- Water temperature.
- Upwelling cells.
- Exposure to waves.
- Turbidity and pollutants associated with river mouths.
- Harmful algal blooms.
- Reef areas and sensitive marine habitats.
- Marine Protected Areas (MPAs).
- Archaeologically important shipwrecks.
- Existing commercial activities.

Based on these criteria, the St Francis Bay and Algoa Bay sites were deemed suitable for further detailed investigation. On-going marine monitoring will provide much needed information which will confirm site specific attributes such as current speed and direction, wave action and temperature.

A Location Map is included as Appendix B of this report.

¹ On 18 June 2010 the Minister of Water and Environmental Affairs promulgated new regulations in terms of Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998), viz, the Environmental Impact Assessment (EIA) Regulations 2010. These regulations came into effect on 02 August 2010 and replace the EIA regulations promulgated in 2006.

5 DEVELOPMENT PROPOSAL & ALTERNATIVES

Development of marine ADZs is being proposed for the farming of finfish for commercial food production.

5.1 ALTERNATIVE ONE – ALGOA 2 AND 3 (PREFERRED)

Algoa 2 and 3 are the two sites determined by the SEA and initial data to be the preferred sites for a marine aquaculture development.

Algoa 2 (A2) is approximately 285ha in size and lies along the north south axis adjacent to the bay. A2 is approximately 5kms from the closest shoreline at its nearest point; 6,5kms from the Port Elizabeth Harbour and 7,5kms from Coega Harbour.

Algoa 3 (A3) lies approximately 2kms off shore of Algoa 2 and along an east west axis, and is approximately 517ha in size. A3 is approximately 7,5 kms from the closest shoreline, 12kms from Port Elizabeth Harbour and 8kms from Coega Harbour.

5.2 ALTERNATIVE TWO – ALGOA 1

Algoa 1 was initially identified in the SEA as the best option due to its proximity to Port Elizabeth Harbour. However, both the visual and marine specialists have identified criteria that will most likely result in more significant negative impacts on users and the environment.

Algoa 2 is approximately 285ha in size and lies approximately 2kms off shore of the beach area that makes up Summerstrand and Humewood.

5.3 ALTERNATIVE THREE – ST FRANCIS 1 AND 2

In the SEA, Algoa Bay and St Francis Bay were identified as having suitable areas that could be used for marine aquaculture development. Two sites were shown in proximity to St Francis Bay.

St Francis 1 (SF1) is approximately 1 500ha in size and lies roughly along a north south axis adjacent to the coastline. SF1, at its closest point is approximately 2kms from the shore.

St Francis 2 (SF2) is approximately 47ha in size and lies within the bay. It is approximately 2kms from the shore at its closest point.

The St Francis Bay sites are being included as alternatives for the EIA process, but are likely to be excluded due to their lack of proximity to suitable harbour facilities and possibilities of high wave action due to refraction off the coastline.

5.4 STATUS QUO ALTERNATIVE (NO GO)

The **Status Quo Alternative** proposes that the Algoa Bay Marine Aquaculture development not go ahead. The 'No-go/Status Quo' alternative will limit the potential associated with the area as a whole for providing potential benefits of skills-based job creation in coastal communities and increased seafood production to compensate for dwindling wild stocks.

Not establishing ADZs will leave current fishing production methods only to supply in the growing demand for seafood products. The sustainability or not of these methods are questionable in the long term. However not establishing the ADZs will eliminate the potential concerns i.e. organic waste concentration below nets, cross-breeding, spread of disease etc associated with ADZs. As such, the No-Go option must be considered.

6 SPECIALIST STUDIES

The following aspects have been considered by specialists in order to determine the current status of the target development areas, as well as to identify potential risks and impacts associated with the development of the finfish cage culture. These are described in greater detail in the main report, while the full specialist reports are available in **Appendix C**.

The following baseline specialist studies have been undertaken and used to inform this Draft Scoping Report as well as the project layout and concept:

- **Marine Ecology** (impact on the marine environment as a result of finfish cage farming);
- **Visual Impact Assessment** (to determine the potential impact of inshore finfish cages on coastal real estate, eco-tourism and the receiving environment).
- **Socio-Economic Impact Assessment** (to determine the financial gain and potential costs of a successful ADZs on the receiving economy i.e. competing industries, as well as the impact of skills development, employment, income generation, sense-of-place, values).

The issues and concerns identified through the baseline studies will be further investigated and assessed through detailed specialist impact assessments in order to determine the significance of potential impacts possibly associated with the proposed project.

7 PLANNING CONTEXT

The decision to investigate South Africa's potential capacity for marine aquaculture is based on national policy and informed by on-going strategic planning undertaken by the national Department of Agriculture, Forestry and Fisheries (DAFF) and the Department of Environmental Affairs (DEA). Various policies and guidelines have been developed dealing with marine aquaculture and these will be used to guide and inform the on-going investigation.

8 PROCESS TO DATE

This Draft Scoping Report (DSR) follows the Application Form submitted to the national Department of Environmental Affairs (DEA) on **8 February 2011**. DEA, as the competent authority, accepted the Application (Ref: **12/12/20/2181**), authorising *Cape EAPrac* to commence with the public participation and Scoping phases of the environmental process. This Draft Scoping Report (DSR) (Ref: NMM101/05), is being advertised and made available to Interested and Affected Parties (I&APs) for a review and comment period of **40 days** extending from **Thursday 1st March 2011 to Thursday 12th April 2012**.

This report reflects the findings of **preliminary specialist investigations** and reports (Marine, Visual and Socio-Economic). It is also a tool to help inform stakeholders of the project, and to identify the **need for further specialist investigations** and assessments in the event that issues/impacts cannot be resolved during the scoping phase.

As part of the public participation process various key stakeholders have been identified and notified of the project and their right to participate and comment on the proposal. The project has been advertised and stakeholders that formally respond to the adverts and written notices, or attend public meetings, will be kept informed throughout the remainder of the on-going environmental process. Please see **Section 24** in the main report and **Appendix D** for evidence of the Public Participation process.

Thus far the following key issues and concerns were raised through informal discussions with the project team, specialists and authorities and the baseline specialist studies:

- Incubation and transmission of fish disease and parasites from captive to wild populations;
- Pollution of coastal waters due to the discharge of organic wastes;
- Escape of genetically distinct fish that compete and interbreed with wild stocks that are often depleted;
- Chemical pollution of marine food chains and potential risk to human health due to the use of therapeutic chemicals in the treatment of cultured stock and antifouling treatment of infrastructure;
- Physical hazard to cetaceans and other marine species that may become entangled in ropes and nets;
- Injury to piscivorous marine animals (including mammals, sharks and birds) from attempts to remove fish from cages and may become entangled;
- User conflict due to exclusion from marine aquaculture zones for security reasons;
- Potentially negative impacts on eco-tourism or coastal real estate due to negative aesthetic impact;
- Removal of fishing pressure from indigenous, wild stock species, thus allowing their numbers to regenerate;
- Potentially enable threatened marine ecosystems to recover in the event that natural fishing operations are replaced by caged fishing;
- Provision of a sustainable supply of fish to supplement the existing and growing local and international consumer demand for seafood resources.

Where required the project will **avoid** areas of concern in order to minimise the potential negative impacts and where impacts cannot be avoided completely, effective **mitigation measures** will be investigated through the on-going environmental process.

9 CONCLUSIONS & RECOMMENDATIONS

This scoping exercise is currently being undertaken to present **concept proposals** to the public and potential Interested & Affected Parties and to identify environmental issues and concerns raised as a result of the proposed development alternatives to date. This will allow I&APs, authorities, the project team, as well as specialists to provide input and raise issues and concerns, based on baseline studies undertaken.

A 12 month monitoring programme is underway that will determine exact site locations based on suitable / favourable environmental conditions.

This Draft Scoping Report (DSR) summarises the process to date, reports on the findings of relevant baseline studies.

Comments in reaction to this Draft Scoping Report will be responded to and included in the Final Scoping Report for submission to DEA. Comments must be submitted on or before **12 April 2012**, in writing to:

**Cape EAPrac
Melissa Mackay
P.O. Box 2070, George, 6530
Email: mel@cape-eaprac.co.za
Fax: 044 874 0432**

MAIN REPORT

APPOINTED ENVIRONMENTAL ASSESSMENT PRACTITIONER:**Cape EAPrac Environmental Assessment Practitioners**

PO Box 2070

George

6530

Tel: 044-874 0365Fax: 044-874 0432

Report written & compiled by: **Melissa Mackay** (ND Nature Conservation), who has five years' experience as an environmental practitioner.

Report reviewed by: **Louise-Mari van Zyl** (MA Geography & Environmental Science [US]; Registered Environmental Assessment Practitioner with the Interim Certification Board for Environmental Assessment Practitioners of South Africa, EAPSA). Miss van Zyl has over ten years' experience as an EAP.

APPLICANT:**Department of Agriculture, Forestry and Fisheries (DAFF)****DEPARTMENT CASE OFFICER & REFERENCE:****Nyiko Ngoveni****12/12/20/2181****AVAILABILITY DATE:****1 March to 12 April 2012**

DRAFT SCOPING REPORT

FOR THE PROPOSED ALGOA BAY MARINE AQUACULTURE DEVELOPMENT

1 INTRODUCTION

Cape EAPrac has been appointed by the national **Department of Agriculture, Forestry and Fisheries (DAFF)**, hereafter referred to as the Applicant, as the independent environmental assessment practitioner to facilitate the Scoping & Environmental Impact Assessment (EIA) process required in terms of the National Environmental Management Act (NEMA, Act 107 of 1998) proposed development of a **Marine Aquaculture development** in Algoa Bay near Port Elizabeth.

The **DAFF: Directorate Sustainable Aquaculture Management**, proposes to develop various sea-based Aquaculture Development Zones (ADZs) within which individual **Finfish Marine Aquaculture projects** (marine aquaculture = sea farming) could be considered along the **Eastern Cape** coastline. The decision to investigate sites along the Eastern Cape coast is based on the outcome of a recent **Strategic Environmental Assessment (SEA)** undertaken for the South African coastline as a whole, highlighting the Eastern Cape as an area with potential for ADZs. A copy of the SEA is included in **Appendix A** of this report.

An SEA (2009) was initially developed which considered the entire South African coast and considered the marine aquaculture of finfish, shellfish and seaweed. This report was revised in 2011 in order to address shortcomings in the selection criteria of aquaculture development zones (ADZs). The most recent SEA, referred to above, focuses only on marine finfish cage farming. Using the SEA as an identification tool, several sites have been identified as being suitable for an Environmental Impact Assessment (EIA) process to investigate the activity of developing finfish cage farming.

The purpose of this **Draft Scoping Report** is to describe the proposed project, the process to be followed, to present alternatives and to list issues identified for further study and comment by specialists as part of the Environmental Impact Report (EIR).

2 MARINE AQUACULTURE

The development of modern sea cage fin fish farming which began in the 1970s, occurred largely due to the growth of the salmon farming industry in countries with glaciated coastlines (e.g. Scotland, Norway, British Columbia, Chile) (Scott & Muir 2000). The number of fin fish species used in marine cage culture internationally has grown dramatically over the last three decades, however, with salmon, tuna, flatfish, kingfish, bream, Sciaenid (e.g. sea bass) and a host of other species grown in a variety of cage culture systems (Staniford 2002).

Although some sea cage farming operations rely on wild caught stock e.g. southern and northern bluefin tuna farms (located largely in Australia and the Mediterranean, respectively), most farms use finfish fingerlings that are obtained from land based hatcheries, where brood stock, egg and larvae husbandry can be carried out under controlled conditions. Fingerlings are stocked into sea cages at species- and environmentally-specific optimal sizes and densities, are fed, usually with commercially available protein and lipid rich dry food, treated for diseases and parasites, graded, and harvested at the size which results in the maximum economic return.

“Aquaculture” is defined as the **propagation, improvement, trade or rearing** of aquatic organisms (plant and animal) in controlled or selected aquatic environments (fresh, sea or brackish waters, on

land or at sea) for any commercial, subsistence, recreational or other public or private purposes (DEA&DP, 2007).

Unlike with 'capture fisheries', which entails the harvesting of aquatic organisms from the natural environment in which no attempt has been made to manage, or otherwise influence the organisms by containment, feeding or application of any husbandry technique; aquaculture involves some form of *intervention in the rearing process to enhance production* i.e. regular stocking, feeding, protection from predators.

Due to a growing interest in aquaculture, the Provincial Department of Economic Development and Environmental Affairs (DEDEA) published an *Introduction to Aquaculture in the Eastern Cape* (Hinrichsen 2008) in which it is stated that the **global harvest of natural aquatic resources for food, protein, oils and other materials has reached capacity and has already caused a collapse in the stocks of various species, habitat loss and pollution**. Nevertheless, the demand for these aquatic resources is increasing and controlled aquaculture production has the potential to meet this demand.

Marine aquaculture, or **mariculture** is the process of cultivating and harvesting sea based aquatic organisms. Marine aquaculture includes the commercial farming of all marine organisms such as finfish (or true fish) and non-fish species such as shellfish (abalone, mussels, prawns) and seaweed. Finfish are typically animals with a skull and in most cases a backbone, that have gills throughout their life and whose limbs, if any, are in the shape of fins.

2.1 HISTORY OF MARINE AQUACULTURE IN SOUTH AFRICA

Over the past 20 years aquaculture has developed into a global industry with over 100 countries engaging in the production of more than 250 different species of finfish, shellfish, crustaceans and aquatic plants (DEA&T, 2007).



Plate 1: Sea weed production at Danger Point (Source DEAT, 2007) **Plate 2: Juvenile abalone (Source DEAT, 2007)**

Commercial marine aquaculture in South Africa started in the 1980's with the establishment of oyster, mussel and prawn farming. Abalone farming was developed in the 1990's and is now the most valuable resource of the sector. South Africa is regarded as the top producer country of farmed abalone. In 2006, the total marine aquaculture production was approximately 1800 tonnes and valued at approximately R250 million.

The Eastern Cape is home to approximately 12,5% of South Africa's aquaculture producers and has been identified as having significant marine aquaculture potential. The coastline is well known for the

harvest of natural marine resources and possesses the potential for the development of a strong marine and freshwater aquaculture sector.

3 LEGAL & PROCESS REQUIREMENTS

The current assessment is being undertaken in terms of the **National Environmental Management Act** (NEMA, Act 107 of 1998)². This Act makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the national Department of Environmental Affairs, DEA) based on the findings of an EIA.

The proposed scheme will entail a number of listed activities, some of which require a basic environmental impact assessment, whilst others require a full scoping and environmental impact assessment. The **Full Scoping & Impact Assessment** must be conducted by an independent environmental assessment practitioner (EAP).

The following Guidelines were considered in particular; the *Guideline to determining specialist involvement*, *Guideline on Alternatives* and the *Guideline on Public Participation*. The following Guidelines were also consulted namely: *Guideline on Biodiversity Specialist Involvement*, *Guideline on Heritage Specialist Involvement* and *Guideline on Visual and Aesthetics Specialist Involvement*. In addition, the legislation that is relevant to this study is briefly outlined below. These environmental requirements are not intended to be definitive or exhaustive but serve to highlight key environmental legislation and responsibilities only.

3.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA

The Constitution of the Republic of South Africa (Act 108 of 1996) states that everyone has a right to a non-threatening environment and that reasonable measures are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

Conservation of resources and promotion of sustainable and renewable resources fulfil the requirements of the Constitution.

3.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA, ACT 107 OF 1998)

The National Environmental Management Act (NEMA, Act 107 of 1998) makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the relevant authorities based on the findings of an environmental assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA).

A Scoping and Environmental Impact Assessment process is required in terms of NEMA. Figure 2 depicts a summary of the Scoping & EIA process.

² On 18 June 2010 the Minister of Water and Environmental Affairs promulgated new regulations in terms of Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998), viz, the Environmental Impact Assessment (EIA) Regulations 2010. These regulations came into effect on 02 August 2010 and replace the EIA regulations promulgated in 2006.

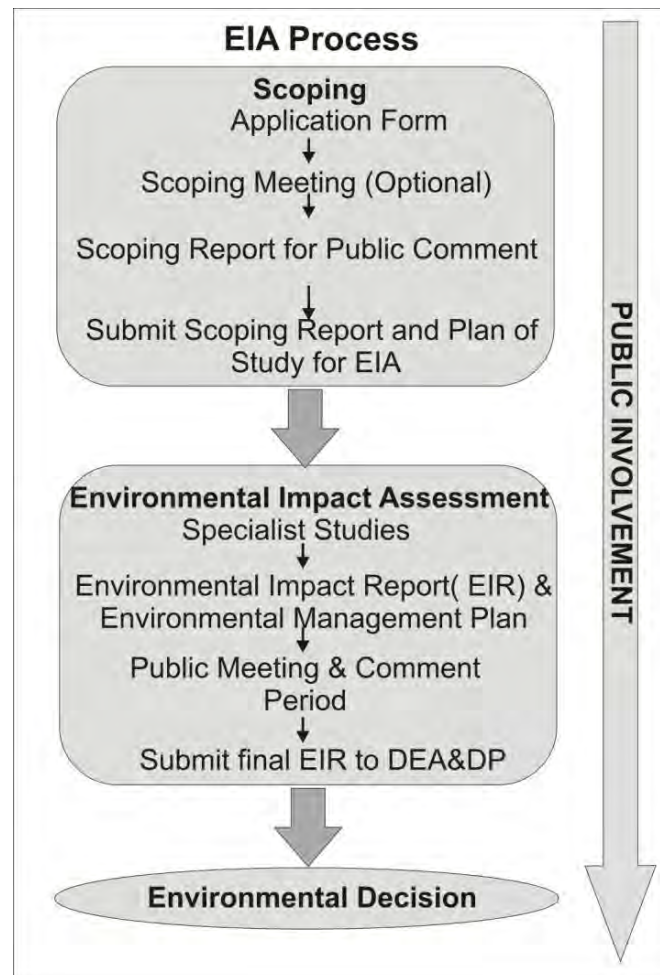


Figure 1: Summary of Scoping & EIA process

The listed activities associated with the proposed development, as stipulation under 2010 Regulations 544, 545 & 546 are as follows:

Table 1: NEMA 2010 listed activities, relating to proposed Algoa Bay Marine Aquaculture Development

R544	Listed Activity
7	The construction of facilities, infrastructure or structures for aquaculture of offshore cage culture finfish, crustaceans, reptiles, amphibians, molluscs and aquatic plants where the facility, infrastructure or structures will have a production output exceeding 50 000kg but not exceeding 100 000 kg per annum (wet weight). Production output to be determined based on monitoring feedback.
14	The construction of structures in the coastal public property where the development footprint is bigger than 50m ² . Structures associated with the fish cages and boat mooring facilities.
16	Construction or earth moving activities in the sea, an estuary, or within the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater, in respect of (vi) infrastructure covering 50 square metres or more. Associated mainly with mooring anchors and individual fish cages.
18	The infilling or depositing of any material or more than 5m ³ into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5m ³ from (ii) the sea. Associated mainly with mooring anchors for individual fish cages.

R545	Listed Activity
13	The construction of facilities, infrastructure or structures for aquaculture for offshore cage culture of finfish, crustaceans, reptiles, amphibians, molluscs and aquatic plants where the facility, infrastructure or structures will have a production output of 100 000 or more kg per annum (live round weight). Only finfish currently under investigation.
R546	Listed Activity
	No activities identified

Before any of the above mentioned listed activities can be undertaken, authorisation must be obtained from the relevant authority, in this case the National Department of Environmental Affairs (DEA).

3.3 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT (ACT 59 OF 2008)

The National Environmental Management: Waste Act (NEM:WA, Act 59 of 2008) makes provision for the identification and assessment of activities that are related to management of waste related activities and which require authorisation from the relevant authorities based on the findings of an environmental assessment. NEMWA is a national act, which is enforced by the Department of Environmental Affairs (DEA). The Act aims to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.

In terms of NEM:WA Section 19(1), no activities have been identified which may require authorisation.

3.4 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (NEM:BA, ACT 10 OF 2004)

This Act controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 & 53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

The Eastern Cape ADZs may cover an area that has been earmarked as a Marine Protected Area (MPA), although all potential MPA data was used during the SEA to identify suitable sites.

3.5 NATIONAL HERITAGE RESOURCES ACT (NHRA, ACT 25 OF 1999)

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). South African National Heritage Resources Agency (SAHRA) is the enforcing authority and in the Eastern Cape.

In terms of Section 38 of the National Heritage Resources Act, SAHRA will require a Heritage Impact Assessment (HIA) where certain categories of development are proposed. Section 38(8) also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is found to be adequate, a separate HIA is not required.

The National Heritage Resources Act requires relevant authorities to be notified regarding this proposed development, as the following activities are relevant:

- *the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- *any development or other activity which will change the character of a site exceeding 5 000 m² in extent;*
- *the re-zoning of a site exceeding 10 000m² in extent.*

Furthermore, in terms of Section 34(1), no person may anyone destroy, damage, alter, exhume or remove cultural / archaeological features from its original position, or otherwise disturb, such features without a permit issued by the SAHRA, or a provincial heritage authority, in terms of Section 36 (3). In terms of Section 35 (4), no person may destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object, without a permit issued by the SAHRA, or the responsible resources authority.

The proposed project will most likely affect the surface environmental of the ocean more so than the sea bottom. Therefore disturbance of the bottoms is unlikely to require prior approval to the NHRA. However, should the heritage authorities require specific input, such will be obtained during the course of the EIA process.

3.6 NATIONAL WATER ACT (ACT 36 OF 1998)

The NWA was instituted to ensure that **sustainability and equity** are identified as central guiding principles in the protection, use, development, conservation, management and control of **water resources**. These guiding principles recognise the basic human needs of present and future generations, the need to protect water resources, the need to share some water resources with other countries, the need to promote social and economic development through the use of water and the need to establish suitable institutions in order to achieve the purpose of the Act.

The principles of the act are as follows:

- Recognising that water is a scarce and unevenly distributed national resource which occurs in many different forms which are all part of a unitary, interdependent cycle;
- Recognising that while water is a natural resource that belongs to all people, the discriminatory laws and practices of the past have prevented equal access to water, and use of water resources;
- Acknowledging the National Government's overall responsibility for and authority over the nation's water resources and their use, including the equitable allocation of water for beneficial use, the redistribution of water, and international water matters;
- Recognising that the ultimate aim of water resource management is to achieve the sustainable use of water for the benefit of all users;
- Recognising that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users; and
- Recognising the need for the integrated management of all aspects of water resources and, where appropriate, the delegation of management functions to a regional or catchment level so as to enable everyone to participate.

In terms of the NWA it is the **right of all people to have access to water, whilst ensuring the sustainability of the resources available**.

Section 21c and i of the National Water Act (NWA) requires the Applicant to apply for authorisation from the Department of Water Affairs for an activity in, or in proximity to any watercourse. The ocean is excluded from the definition of a watercourse.

3.7 NATIONAL ENVIRONMENTAL MANAGEMENT: INTEGRATED COASTAL MANAGEMENT ACT (NEM:ICMA, ACT 24 OF 2008)

The Act aims to establish a system of integrated coastal and estuarine management in the Republic, including norms, standards and policies, in order to promote the conservation of the coastal environment, and maintain the natural attributes of coastal landscapes and seascapes, and to ensure that development and the use of natural resources within the coastal zone is socially and economically justifiable and ecologically sustainable; to define rights and duties in relation to coastal areas; to determine the responsibilities of organs of state in relation to coastal areas; to prohibit incineration at sea; to control dumping at sea, pollution in the coastal zone, inappropriate development of the coastal environment and other adverse effects on the coastal environment; to give effect to South Africa's international obligations in relation to coastal matters; and to provide for matters connected therewith.

The ICMA activities applicable to the Algoa Bay Marine Aquaculture development may include activities associated with **waste, land use and lease agreements**. The national Department of Environmental Affairs sub-directorate Coastal Planning and Environmental Protection has been included in this EIA process as a relevant state department. Any permits or agreements must be obtained from the department.

Apart from the above-mentioned related key pieces of Legislation, a host of national legislation is also regarded as relevant to the development of ADZs and finfish farms, including:

- Agricultural pests act (Act 36 Of 1983)
- Development Facilitation (Act 67, 1995)
- Marine Living Resources Act, 1998 (Act No. 18 of 1998)
- Fertilizers, Farm Feeds, Agriculture Remedies and Stock Remedies Act, 1947 (Act No.36 of 1947)
- The Animal Diseases Act, 1984 (Act No. 35 of 1984)
- The Genetically Modified Organisms Act, 1997 (Act No. 15 of 1997)
- The Animal Improvement Act, 1998 (Act No. 62 of 1998)
- The National Environmental Management: Protected Areas Act, 2003 (Act No. 10 of 2003)
- The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
- The Sea Birds and Seals Protection Act, 1973 (Act No. 46 of 1973)
- The Health Act, 1977 (Act No. 63 of 1977)
- The Medicines and Related Substances Control Act, 1965 (Act No. 101 of 1965)
- The Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972)
- The Water Services Act, 1997 (Act No. 108 of 1997)
- The National Regulator for Compulsory Specifications Act, 2008 (Act No. 5 of 2008); and
- Standards Act, 2008 (Act No. 8 of 2008)

These numerous pieces of legislation are not integrated and are managed by a range of different regulatory bodies. A review of all the applicable legislation is beyond the scope of this **SEA**, but the DAFF, the lead agent for the development and management of the aquaculture sector in South Africa, recently (September 2011) called for proposals to conduct a comprehensive review of the legislation governing the aquaculture sector and to provide recommendations as to how identified shortcomings or gaps should be addressed.

3.8 **RELEVANT REGULATIONS AND GUIDELINES**

Amongst others the following environmental Regulations and Guidelines were considered as background to this application:

- Brownlie S (2005). *Guideline for involving biodiversity specialists in EIA processes*. Department Environmental Affairs & Development Planning.
- DWA (2001). *Generic public participation guideline*. Department of Water Affairs and Forestry.
- DEAT (2002). *Integrated Environmental Management Information Series 3: Stakeholder Engagement*. Department of Environmental Affairs and Tourism, Pretoria.
- DEADP (2003). *Waste Minimisation Guideline for Environmental Impact Assessment reviews*. NEMA EIA Regulations Guideline & Information Series, Department Environmental Affairs & Development Planning.
- DEAT (2004). *Criteria for determining alternatives in EIAs*, Integrated Environmental Management, Information Series 11, Department of Environmental Affairs & Tourism, Pretoria.
- DEAT (2004). *Environmental management Plans*, Integrated Environmental management, Informatino Series 12, Department Environmental Affairs & Tourism
- DEAT (2005). *Assessment of Impacts and Alternatives*, Integrated Environmental Management Guideline Series, Department of Environmental Affairs & Tourism, Pretoria.
- DEAT (2005). *Guideline 4: Public Participation*, in terms of the EIA Regulations 2005, Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism, Pretoria.
- DEADP (2005). *Guideline for the review of specialist input in the EIA process*. NEMA EIA Regulations Guideline & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP (2005). *Guideline for involving biodiversity specialists in the EIA process*. NEMA EIA Regulations Guideline & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP (2005). *Guideline for environmental management plans*. NEMA EIA Regulations Guideline & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP (2005). *Provincial urban edge guideline*. Department Environmental Affairs & Development Planning.
- DEAT (2006). *EIA Regulations* in terms of the National Environmental Management Act (Act No 107 of 1998) (Government Notice No R 385, R 386 and R 387 in Government Gazette No 28753 of 21 April 2006).
- DEADP (2006). *Guideline on the Interpretation of the Listed Activities*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP (2007). *Guide on Alternatives*, NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP (2007). *Guideline on Appeals*, NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP (2007). *Guideline on Exemption Applications*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.

- DEADP (2007). *Guideline on Public Participation*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP (2010). *Guideline on Need & Desirability*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP (2010). *Guideline on Alternatives*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP (2010). *Guideline on Transitional Arrangements*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP (2010). *Guideline on Exemption Applications*. NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP (2010). *Guideline on Appeals*. NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP (2010). *Guideline on Public Participation*. NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- Keatimilwe K & Ashton PJ 2005. *Guideline for the review of specialist input in EIA processes*. Department Environmental Affairs & Development Planning.
- Lochner P 2005. *Guideline for Environmental Management Plans*. Department Environmental Affairs & Development Planning.
- Munster F 2005. *Guideline for determining the scope of specialist involvement in EIA processes*. Department Environmental Affairs & Development Planning.
- Oberholzer B 2005. *Guideline for involving visual & aesthetic specialists*. Department Environmental Affairs & Development Planning.
- Winter S & Beaumann N 2005. *Guideline for involving heritage specialists in EIA processes*. Department Environmental Affairs & Development Planning.
- Celliers, L., Breetzke, T., Moore, L. and Malan, D. 2009. *A User-friendly Guide to South Africa's Integrated Coastal Management Act*. The Department of Environmental Affairs and SSI Engineers and Environmental Consultants. Cape Town, South Africa

4 BROAD CONTEXT

The Department of Environmental Affairs & Tourism (DEAT), Branch Marine and Coastal Management completed a Strategic Environmental Assessment (SEA) aimed at identifying suitable land and sea space surrounding South Africa's coastal provinces for the establishment of Aquaculture Development Zones (ADZs) in 2009. The purpose of establishing the ADZs was to encourage investor and consumer confidence in the marine aquaculture industry in South Africa, and also to create incentives for industry development, provide marine aquaculture services, manage risk associated with aquaculture, and provide skills development and employment for coastal communities.

Four sea-based sites were selected in the Eastern Cape as a first phase in establishing ADZs in South Africa. These were Algoa Bay, Shelly Beach, St Francis Bay and Point St Francis. In 2010, the Directorate Sustainable Aquaculture Management: Aquaculture Animal Health and Environmental Interactions, in the Department of Agriculture, Forestry and Fisheries (DAFF), called for proposals from suitably qualified service providers to undertake an Environmental Impact Assessment (EIA) for the development of these ADZs specifically for marine fin fish cage aquaculture, which is relatively new to South Africa.

The 2009 SEA (Jooste 2009) identified the following Draft Policy Documents as relevant to marine aquaculture development in South Africa:

- Policy and Guidelines for Fin Fish Farming, Marine Aquaculture experiments and Pilot Projects in SA. DEAT 2006, 2007.
- Guidelines for Mariculture Ranching in South Africa. DEAT 2006, 2007.
- Marine Aquaculture Sector Development Plan 2006, 2007.

Although it was not mentioned in the 2009 SEA, the final Marine Aquaculture Policy document was published by DEAT in 2007, namely:

“Policy for the development of a Sustainable Marine Aquaculture Sector in South Africa” (Government Gazette No. 30263 September 2007). In this policy document the rationale for the establishment of ADZs is clearly stated (pg. 6 section 4 policy considerations):

“Marine aquaculture faces competition from other land and sea use activities, both commercial as well as recreational. It is a matter of high priority, therefore, to ensure that areas (sea, land and suitable estuaries) which may be suitable for marine aquaculture development are zoned for this purpose.”

The policy goes on to state that the land use planning requirements and initial environmental impact assessment will take place in advance (presumably funded by the state) with the aim of reducing the entry costs for farmers and minimizing potential environmental impacts. The policy however, also explicitly states that “The National Environmental Management Act (NEMA), Environmental Impact Assessment (EIA) requirements will still be applicable”. In order to avoid possible conflicting use, the policy also makes clear that the development of an ADZ should take cognizance of other marine activities such as tourism, fishing and recreational activities, as well as area management initiatives such as MPAs. The policy also highlights the needs for research into finfish culture, and includes two of suggested research and technology development programmes that deal with this topic (pg 14):

- Finfish technology platform programme, and
- Finfish cage culture development programme

The 2007 marine aquaculture policy gave rise to a “Marine Aquaculture Policy Implementation Plan 2009-2014” (DEAT MCM 2009), wherein the need for the establishment of aquaculture development zones was identified as one of the 11 key required implementation programmes.

5 SITE DESCRIPTION

Algoa Bay and St Francis Bay are located on the south eastern coast of South Africa. Port Elizabeth is the largest city in the area, and provides the economic hub for both Algoa and St Francis Bays.

The proposed marine aquaculture sites in this area were identified in the 2011 SEA (Clark et al) as two prospective sites for the development of marine aquaculture. In the SEA, site selections were considered using the following criteria:

- **Distance from a suitable port.** A suitable port is considered one which is able to accommodate a 15m work boat and falls within 20km of the proposed site;
- **Water depth.** A balance between the minimum required water depth for flushing waste (international standards are at least 5m below the bottom of the cage) and the increasing cost of mooring in deeper water. Inshore cages should thus be between 20 and 60m and offshore cages between 30 and 150m;
- **Water temperature.** Optimal growth of likely SA species (kob, yellowtail, grunter) trading off against parasite / disease prevalence;

- **Upwelling cells.** Upwelling can create temperatures shocks which negatively affects growth and health of a cultured stock;
- **Exposure to waves.** Dominant sea conditions can damage cages and decrease the service frequency of the facility;
- **Turbidity and pollutants associated with river mouths.** Current speeds from river mouths could potentially deform cages and damage moorings;
- **Harmful algal blooms.** Algal blooms which occur frequently and for long periods can impact on the survival, growth rate and health of cultured stock;
- **Reef areas and sensitive marine habitats.** Reefs and sensitive habitats, especially rocky areas, could be severely impacted on by cultured stock. Sandy substrates have less diversity and are less sensitive to impacts from waste and mooring;
- **Marine Protected Areas (MPAs).** MPAs fulfil conservation, research and socio-economic roles and should remain as pristine as possible;
- **Archaeologically important shipwrecks.** Mooring and anchoring required for fish farms may damage archaeologically important sites;
- **Existing commercial activities.** To avoid user conflict the site should not be placed in areas that conflict with other users such as fishing, mining or shipping;

Based on these criteria, the St Francis Bay and Algoa Bay sites were deemed suitable for further investigation. The ongoing marine monitoring will provide answers which will confirm site specific attributes such as current speed and direction, wave action and temperature. This monitoring is expected to take 12 months and will provide appropriate seasonal data.



Plate 3: Thermister used to determine temperature and variations.



Plate 3: Acoustic Doppler Current Profiler being deployed.

A Location Map is included as [Appendix B](#) of this report.

6 DEVELOPMENT CONCEPT & ALTERNATIVES

The EIA process requires the consideration of Alternatives when assessing activities. Alternatives that should or could have been considered prior to commencement of construction.

According to the *Guide on Alternatives* (DEA&DP, 2010) alternatives are identified as: “different means of meeting the general purpose and requirements of the activity, which may include alternatives to: (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity; (d) the technology to be

used in the activity or process alternatives; (e) the operational aspects of the activity; and (f) the option of not implementing the activity”.

Possible Alternatives that may have been considered for the proposed Marine Aquaculture facility could have been:

TYPE OF ALTERNATIVE	APPLICATION TO ALGOA BAY MARINE AQUACULTURE DEVELOPMENT
Location	Alternative locations are being considered.
Type of Activity	Marine Aquaculture in the form of fish cages.
Design or Layout	Designs and layouts are only expected to be finalised once the Applicant identifies and signs agreements with a concessionaire. Designs of fish cages are mostly generic, however use of different materials has cost implications and are not included in this process. No Alternatives for Design or Layout were considered.
Technology	The technology required to construct and operate a marine aquaculture facility is mostly standard. No alternatives were considered.
Operational Aspects	Operation of a marine aquaculture facility must comply with basic management actions and mitigations, but operation of such a facility is dependent on whichever concessionaire is chosen to operate on the site. No Operational aspects are thus considered as Alternatives.
“No-Go Option”	This option must always be considered as a baseline against which the other alternatives are measured and refers to not continuing with the activity. The No Go option in this case is not undertaking the marine aquaculture development.

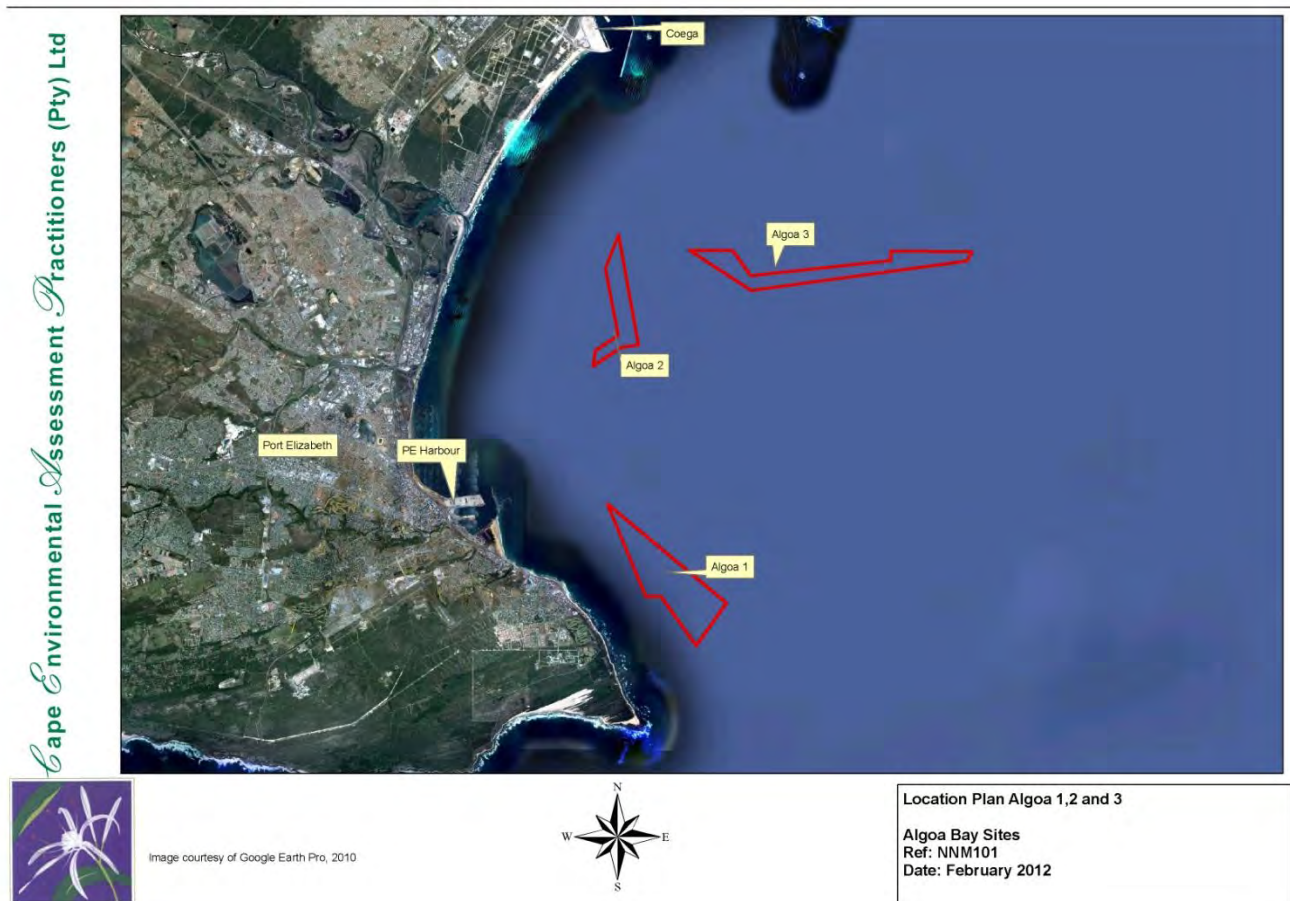
Taking the above into consideration, it can thus be concluded that only location alternatives could be introduced into the EIA process for the proposed Algoa Bay Marine Aquaculture development. The alternatives identified below are based on the site selection undertaken and identified in the SEA (December 2011). This EIA considers the sites and impacts of marine aquaculture, but does not assess specific materials used as these are industry and cost driven and will be implemented by individual operators whoever they may be in future. The site areas will be further defined once the ongoing monitoring of the marine environment is completed.

6.1 **ALTERNATIVE ONE – ALGOA 2 AND 3 (PREFERRED)**

Algoa 2 and 3 are the two sites determined by the SEA and initial data to be the preferred sites for a marine aquaculture development.

Algoa 2 (A2) is approximately 285ha in size and lies along the north south axis adjacent to the bay. A2 is approximately 5kms from the closest shoreline at its nearest point, 6,5kms from the Port Elizabeth Harbour and 7,5kms from Coega Harbour.

Algoa 3 (A3) lies approximately 2kms off shore of Algoa 2 and along an east west axis, and is approximately 517ha in size. A3 is approximately 7,5 kms from the closest shoreline, 12kms from Port Elizabeth Harbour and 8kms from Coega Harbour.



6.2 **ALTERNATIVE TWO – ALGOA 1**

Algoa 1 was initially identified in the SEA as the best option due to its proximity to Port Elizabeth Harbour. However, both the visual and marine specialists have identified criteria on site that will have negative impacts on users and the environment.

Algoa 2 is approximately 285ha in size and lies approximately 2kms off shore of the beach area that makes up Summerstrand and Humewood.

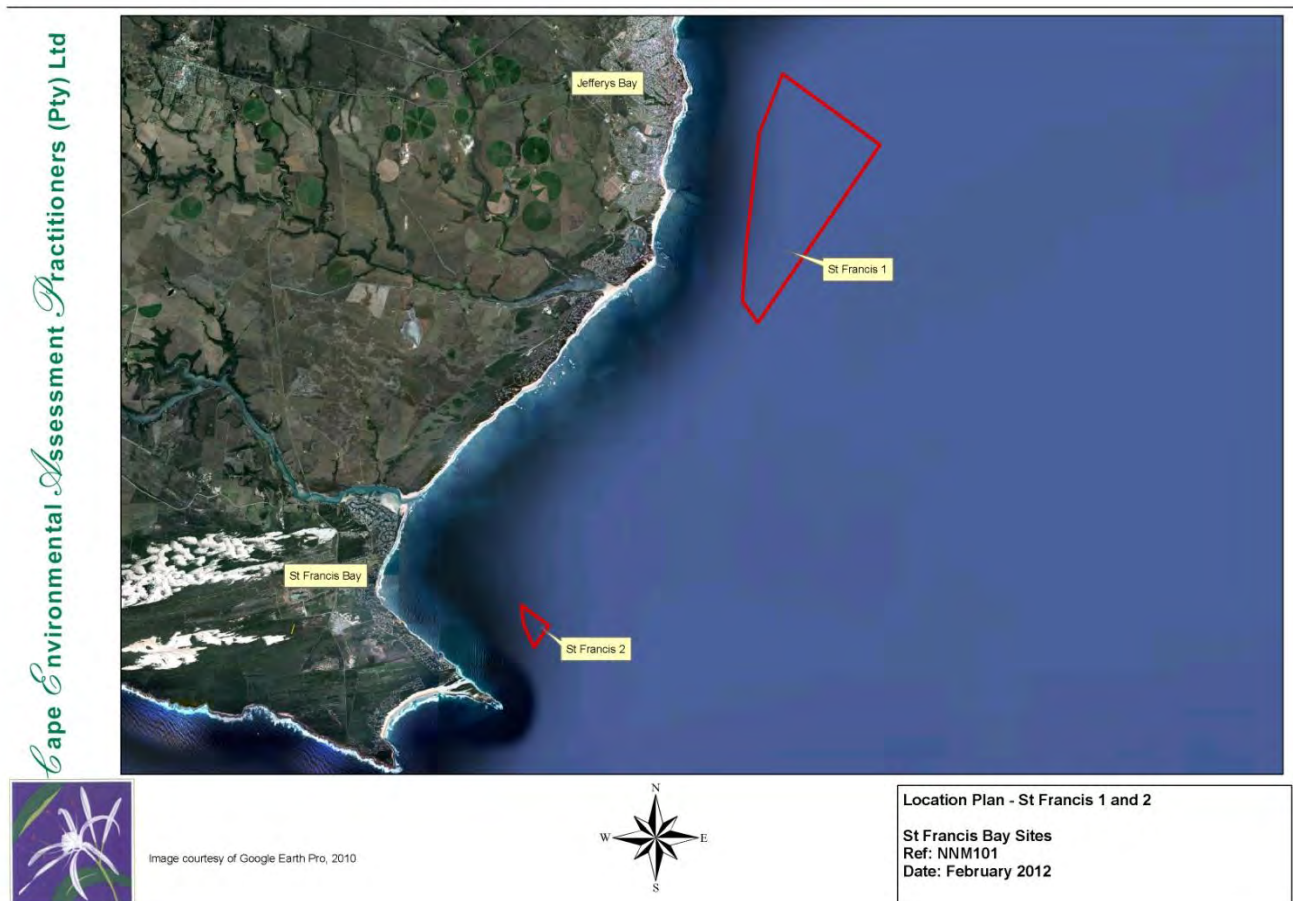
6.3 **ALTERNATIVE THREE – ST FRANCIS 1 AND 2**

In the SEA, Algoa Bay and St Francis Bay were identified as having suitable areas that could be used for marine aquaculture development. Two sites were shown in St Francis Bay.

St Francis 1 (SF1) is approximately 1500ha in size and lies roughly along a north-south axis adjacent to the coastline. SF1, at its closest point is approximately 2kms from the shore.

St Francis 2 (SF2) is approximately 47ha in size and lies within the bay. It is approximately 2kms from the shore at its closest point.

The St Francis Bay sites are being included as alternatives for the EIA process, but are likely to be excluded due to their lack of proximity to harbour facilities and possibilities of high wave action due to refraction off the coastline.



6.4 STATUS QUO ALTERNATIVE (NO GO)

The **Status Quo Alternative** proposes that the Algoa Bay Marine Aquaculture development not go ahead.

The 'No-go/Status Quo' alternative will limit the potential associated with the area as a whole for providing potential benefits of skills-based job creation in poor coastal communities and increased seafood production to compensate for dwindling wild stocks.

The impacts associated with other alternatives (i.e. waste management, spread of disease) must be compared to the impacts of the No Go alternative (increased pressure on wild stock through known commercial fishing, depletion of natural resources) during the Impact Assessment phase of this process.

7 INFRASTRUCTURE OVERVIEW

The infrastructure required for finfish cages includes cages which are anchored onto the sea bed. The industry uses a wide range of materials for the cages and it has not yet been ascertained as to

the specific make for this proposal. Cost implications will play a role in determining materials, but it will be necessary to include management criteria for whichever is finally proposed. Generally, finfish cages have a layout as indicated below. The cages typically have a diameter of approximately 60m and are approximately 14m deep.

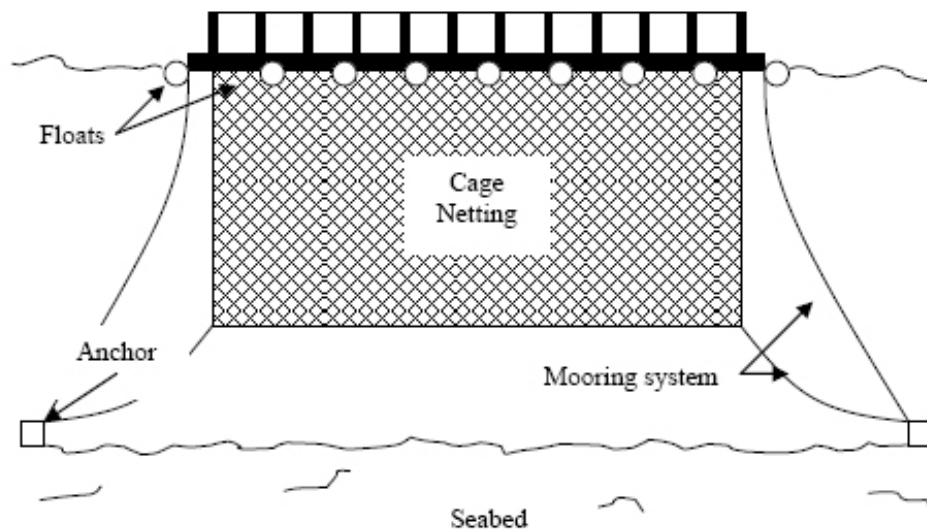


Figure 2: Schematic diagram of sea-based fish cages (Birt, Rodwell & Richards, 2009)

The depth that cages are placed can change due to location i.e. cages in areas that have wave action should be placed at a minimum depth of 20m whereas cages in areas that are more sheltered can be placed at depths up to 40m. Importantly, from the bottom of the cage to the sea bed should comprise of no less than 5m to allow sufficient current movement. This controls both waste and oxygen content in the water.

A system of floating walkways can be placed adjacent to the cages to provide safe and easy access and work space for personnel. Cages are accessed from shore by means of boats. As can be seen below, cages can take on multiple shapes and sizes, but essentially retain the same function.



Plate 5: Floating finfish cage (Sourced ECDC, 2009)



Plate 6: JPS Industries Inc. cage (installing, removing cages) (JPS website)



Plate 6: Research vessel accessing a submerged cage off White Island, USA.

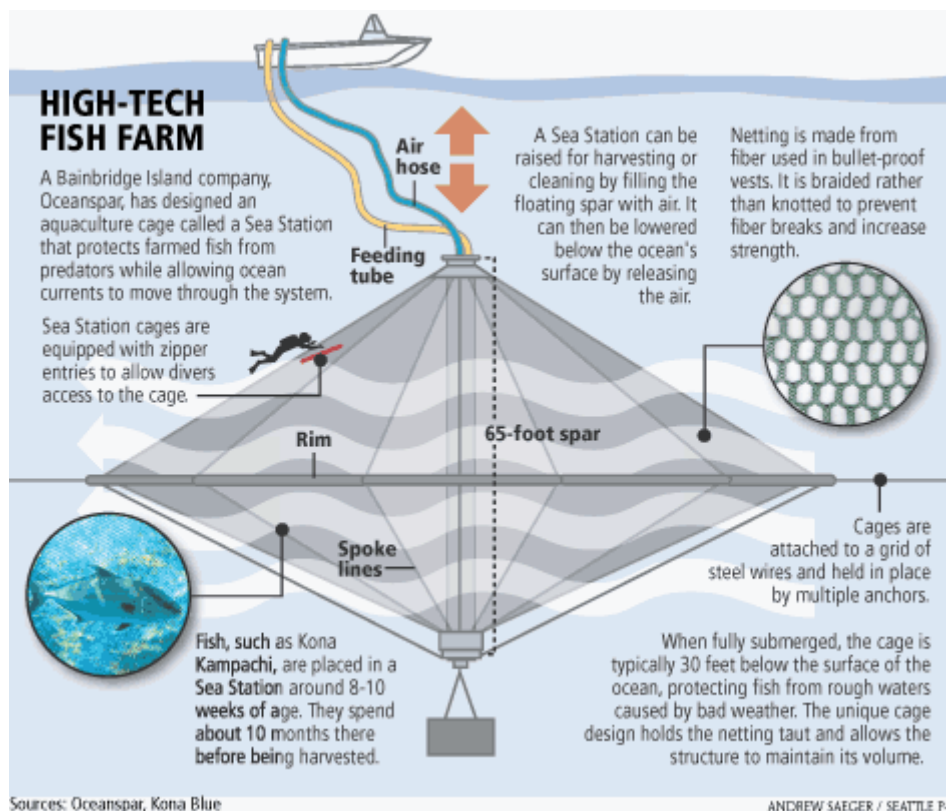


Plate 7: Example of high tech fish farm

Fish are removed by boat to shore where they are processed. In order to retain freshness they are generally removed from the cages and placed into boat holds with ice or ice water. This induces thermic shock. It is not likely that processing of the fish will take place on board due to the nearness of either the Port Elizabeth or Coega Harbours from where fish can be transported to processing facilities elsewhere.

8 NEED AND DESIRABILITY OF THE ACTIVITY

In keeping with the requirements of an integrated Environmental Impact process, the DEA&DP *Guideline on Need and Desirability (2010)* has been utilised to provide a concise estimation of the activity to the broader societal needs. The concept of need and desirability can be explained in terms of its two components where *need* refers to *time* and *desirability* refers to *place*. The questions pertaining to both *NEED* and *DESIRABILITY*, as specified in the Guideline, are answered below:.

8.1 NEED (TIMING):

Is the proposed development in line with the projects and programmes identified as priorities within the credible IDP?

According to the 2011/2015 IDP for the Nelson Mandela Bay Municipality, the primary goal of government in the next three years is to ensure that the jobless growth trend is reversed and that more emphasis is placed on job creation and youth development. Industrial sectors that have a high labour absorption capacity is targeted, e.g. tourism. Further, skills development that are linked to labour demand by industries will be prioritised, e.g. the training of artisans to provide competent skills in support of the manufacturing and *maritime industries*.

Should the development occur here at this point in time?

The sites have been determined by a Strategic Environmental Assessment (SEA) which commenced in 2009 and have undergone two revisions. The SEA produced in 2011 by Anchor Environmental further defined the sites in the Algoa Bay and St Francis Bay areas as potentially suitable compared to other locations.

Does the community / area need the activity and the associated land use concerned?

According to the specialist Socio-economic study, the Eastern Cape coast suffers high poverty in the coastal communities reliant on marine resources. As long as the project does not create conflict with other industries, the proposed activity will provide benefits in terms of skills-based employment opportunities as well as reduce the pressure on wild caught stock.

Are the necessary services with adequate capacity currently available?

Port Elizabeth has sufficient capacity for fish processing and manufacturing. The proximity of two major ports, Port Elizabeth and Coega Harbours, is an additional benefit.

Is this development provided for in the infrastructure planning of the municipality?

No, this development is being initiated by the national Department of Agriculture, Forestry and Fisheries (DAFF) and will be funded by concessionaires.

Is this project part of a national programme to address an issue of national concern or importance?

Yes. The national Department of Agriculture, Forestry and Fisheries (DAFF) are promoting marine aquaculture as a means of addressing poverty, unemployment and over utilisation of wild fish stocks (Draft National Aquaculture Strategic Framework) and the national Department of Environmental Affairs has initiated strategic policy regarding this industry (DEAT 2007).

8.2 DESIRABILITY (PLACE):

Is the development the best practicable environmental option for this land / site?

The SEA provided the initial identification of the relevant sites. Further monitoring and specialist input from this EIA will determine best practicable environmental options.

Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?

No. Both the IDP and SDF support the potential for sustainable job creation and sustainable environmental resources.

Would the approval of this application compromise the integrity of the existing approved environmental management priorities for the area?

No. The SEA took into account factors including environmental management priorities such as existing and future proposed Marine Protected Areas (MPA's) when identifying suitable aquaculture development zones.

Do location factors favour this land use at this place?

Based on the outcome of the SEA it can be confirmed that the preferred locations are favourable. Various constraints and management requirements will however need to be implemented.

How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas?

The SEA addressed issues of sensitivity when identifying suitable sites. Furthermore, consultation with industry role-players in terms of existing fishing areas has further refined site selection and has played an important role in selection of the preferred Alternative.

How will the development impact on people's health and wellbeing?

Unless resulting in direct competition / loss of income / jobs by implementing the proposed project, it is unlikely that impacts of the aquaculture development zones will have a noticeable impact on human health and wellbeing.

Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?

Care must be taken to avoid unwanted conflict with existing marine enterprises to avoid unacceptable opportunity cost.

Will the proposed land use result in unacceptable cumulative impacts?

The proposal of only two ADZs, at the locations proposed, is unlikely to cause unacceptable cumulative impacts. The potential for cumulative impacts will however be determined and assessed as part of the ongoing EIA process.

9 POLICY & PLANNING

The decision to investigate South Africa's marine aquaculture capacity is based on **national policy** and informed by on-going strategic planning undertaken by the national Department of Agriculture, Forestry and Fisheries (DAFF) and the Department of Environmental Affairs (DEA). Various policies and guidelines have been developed dealing with marine aquaculture. These include:

- Policy and Guidelines for Fin Fish Farming, Marine Aquaculture experiments and Pilot Projects in SA. DEAT 2006, 2007.
- Guidelines for Mariculture Ranching in South Africa. DEAT 2006, 2007.
- Marine Aquaculture Sector Development Plan 2006, 2007.
- Policy for the development of a Sustainable Marine Aquaculture Sector in South Africa. DEAT, 2007.
- Strategic Environmental Assessment (SEA). DEAT, 2009.
- Strategic Environmental Assessment – Identification of potential marine aquaculture development zones for finfish cage culture. DAFF, 2011.

10 PROFESSIONAL TEAM

The following specialists/consultants form part of the project team who have provided and will continue to provide input into the environmental process:

Cape Environmental Assessment Practitioners (<i>Cape EAPrac</i>)	L van Zyl & M Mackay
Anchor Environmental Marine Ecologists	Dr Barry Clark & Dr Ken Hutchings
VRM Africa (Visual Assessment)	Stephen Stead
Umcebisi Business Advisers (Pty) Ltd (Socio-Econ)	Prof Jonathan Bloom

The specialist baseline studies for the Algoa Bay Marine Aquaculture development have been used to inform this Scoping Report. Section 11 below provides a summary on each of the baseline studies.

The baseline studies are included unadulterated in [Appendix C](#) of this report.

11 ASSUMPTIONS & LIMITATIONS

This section provides a brief overview of *specific assumptions and limitations* having an impact on this environmental application process:

- It is assumed that the information on which this report is based (specialist studies and project information, as well as existing information) is **correct, factual and truthful**.
- The proposed development is **in line** with the statutory planning vision for the area and thus it is assumed that issues such as the cumulative impact of development in terms of character of the area and its resources, have been taken into account during the strategic planning for the area.
- It is assumed that all the relevant **mitigation measures** and agreements specified in this report will be implemented in order to ensure minimal negative impacts and maximum environmental benefits.
- It is assumed that Stakeholders and Interested and Affected Parties notified during the initial public participation process will submit all relevant **comments within the designated 40-days** review and comment period, so that these can be included in the Final Scoping Report can be timeously submitted to the delegated Authority, the Department Environmental Affairs for consideration.

The following specialists have listed the following specific assumptions & limitations in their reports:

VISUAL:

- Although every effort to maintain accuracy was undertaken, as a result of the Digital Elevation Model (DEM) being generated from satellite imagery, and not being a true representation of the earth's surface, the viewshed mapping is approximate and may not represent an exact visibility incidence;
- The use of Google Earth Pro for mapping is licensed for use in the Baseline VIA document; and
- In the absence of specific regulations for Visual Impact Assessment, reference has been made to the Western Cape DEA&DP Guideline for involving visual and aesthetic specialists in EIA processes.

SOCIO-ECONOMIC:

Several limitations were identified during the study:

- Detailed socio-demographic and –economic statistics for Nelson Mandela Bay are outdated;
- Comparisons are seldom possible between the 1996 and 2001 census years due to changes in the enumeration areas;
- There are discrepancies in the 2001 population data for the area (these were corrected where possible);
- A comparison between the population figures for 2001 (Census) and 2007 (Community Survey) is not possible due to the limitations of selecting a sample that is extrapolated to the population as was done for the Community Survey (2007). A significantly larger margin of

error would be prevalent when adopting a sample approach vs. a census (which is intended to cover the entire population and not a selected sample); and

- It was not possible to access official statistics such as tonnage from the Harbour Master as the statistics are reserved for official government use.

This scoping process was undertaken with full knowledge of the above assumptions and cognisance was taken of the limitations as specified.

12 SPECIALIST STUDIES

The following aspects have been considered by specialists in order to identify potential impacts which the renewable energy facility may cause, and provide recommendations:

- Marine Ecology (impact on the marine environment as a result of finfish cage farming);
- Visual Assessment (to determine the potential impact of inshore finfish cages on coastal real estate and the receiving environment).
- Socio-Economic Assessment (to determine the financial gain and potential costs of a successful ADZs on the economy and on the receiving economy i.e. competing industries, as well as the impact of skills development, employment, sense-of-place, values).

For the purposes of this Scoping phase of the environmental process, the specialists have undertaken baseline assessments to determine the current status of the site and identify potential constraints to the proposed development on the target site. Extracts from these baseline studies are provided below.

Please note that specialists used the terminology of the various sites as identified in the SEA. Where these are not consistent with the Alternatives according to this report, the EIA terminology is shown in parentheses.

12.1 MARINE

A Baseline Marine Report (February 2012) was compiled by S. Porter, K. Hutchings and B.M. Clark of Anchor Environmental. The following has been summarised from the report. Please see **Appendix C, Annexure C1** for the full report.

The proposed **Aquaculture Development Zones** (ADZs) in the Eastern Cape Province were identified during a SEA of the entire South African coastline using systematic-based spatial analyses. The analysis yielded four potential sites in the Eastern Cape for caged fin fish aquaculture.

The potential environmental impacts of sea based finfish cage culture are briefly discussed below:

- The incubation and transmission of fish disease and parasites from captive to wild populations.
- Pollution of coastal waters due to the discharge of organic wastes.
- Escape of genetically distinct fish that compete and interbreed with wild stocks that are often already depleted.
- Chemical pollution of marine food chains (& potential risk to human health) due to the use of therapeutic chemicals in the treatment of cultured stock and antifouling treatment of infrastructure.
- Fish cages pose a physical hazard to cetaceans and other marine species that may become entangled in ropes and nets.
- Piscivorous marine animals (including mammals, sharks, bony fish and birds) attempt to remove fish from the cages and may become tangled in nets and damage nets leading to

escapes and stress or harm the cultured stock. Farmers tend to kill problem predators or use acoustic deterrents.

- User conflict due to exclusion from marine aquaculture zones for security reasons or negative impacts on tourism and coastal real estate value due to negative aesthetic impacts of fish farms.

Many of the potential impacts of fin fish caged aquaculture such as pollution, habitat alteration and user conflict can be **mitigated** by correct **site selection** as employed in the spatial analyses. Other potential impacts can be mitigated by astute **animal husbandry** and **adaptive management strategies**.

The potential ADZs situated in Algoa Bay and St Francis Bay, occur in a warm temperate biogeographic area where warm subtropical and cooler temperate water undergoes mixing. In addition, periodic upwelling may occur near the rocky headlands of the bays during easterly winds that can cause sharp drops in temperature. Temperature and current dynamics are therefore complex and vary over small spatial scales within each of the bays. *In situ* monitoring of the physical oceanography of Algoa Bay is therefore to be carried out over the next 12 months at the two most favourable ADZs using Acoustic-Doppler Current Profilers (ADCPs) and underwater temperature recorders moored throughout the water column (thermistor strings). For accurate bottom type characterisation and depth profiling, a sea bed survey using a single beam echo-sounder and differential GPS will be undertaken.

The area is also known to support a high biodiversity of marine life, particularly reef-associated invertebrates and fish as well as several breeding colonies of endangered or vulnerable seabirds. Valuable fisheries particularly for squid (chokka) are also present. Baseline ecological sampling of the benthic macrofauna will be undertaken within the expected footprint of the proposed ADZs before any development. Baseline data is essential so that potential future impacts can be detected and proactively managed and mitigated.

Initial data from the monitoring will be included as part of the Impact Assessment phase.

12.2 **VISUAL**

A Baseline Visual Impact Assessment (February 2012) was compiled by Stephen Stead, of Visual Resource Management Africa cc, for the proposed Algoa Bay Marine Aquaculture development, from which the following is drawn. Please see **Appendix C, Annexure C2** for the full report.

Visual impact is defined as *'the effect of an aspect of the development on a specified component of the visual, aesthetic or scenic environment within a defined time and space.'* (Oberholzer, B., 2005). As identified in this definition, 'landscapes are considerably more than just the visual perception of a combination of land form, vegetation cover and buildings, as they embody the history, land use, human culture, wildlife and seasonal changes to an area.' (U.K IEMA, 2002). These elements combine to produce distinctive local character that will affect the way in which the landscape is valued and perceived.

12.2.1 **Landscape Context**

The visual baseline study assesses the proposed landscape modifications in the context of the existing landscape character of the area. The baseline assessment involves a site visit, a background study into the potential receptors and an assessment of the exposure and potential issues affecting the proposed development, including preliminary recommendations. Photographic

examples of the landscape character in some of the areas within the viewshed of the proposed sites can be seen below:

Coega 3 & 4 Landscape Context (Algoa 2 and 3)



Plate 8: Coega harbour with Port Elizabeth in the background (Source: Brian Hawkins/Mainport Africa Shipping. www.ports.co.za)



Plate 9: Coega Harbour

The Coega 1, 2 and 3 (referred to in this document as Algoa 1, 2 and 3) sites are located in Algoa Bay, south of Coega Harbour, which is 15km north-east of Port Elizabeth. The industrial harbour complex is adjacent to a deep water port, the port of Ngqura. The facilities at Coega, the depth of the channel and its location in the protected Nelson Mandela Bay, make it one of the best positioned deepwater ports on the South African coast. The landscape character of the land is industrial, with an existing context of large freight shipping in the bay, as can be seen in the photographs above.

Port Elizabeth 1 Landscape Context (Algoa 1)



Plate 10: View of Port Elizabeth harbour

(Source: firefly/wwwporteliabthdailyphoto.com)



Plate 11: View of Port Elizabeth hotels

The Port Elizabeth site is located approximately 4km east of Summerstrand and 4km from the Recife Nature Reserve. It is well known for its harbour and shipping industrial context which generates high levels of contrast. There is also an existing precedent for ships located in the bay. Port Elizabeth

also has a strong tourist economy based on its many tourist activities and beautiful beaches along Algoa Bay. It has intensive tourist development areas which has a high level of contrast created by dominating hotels. The Recife Nature Reserve has a wilderness sense of place and is located on the peninsula of Algoa Bay.

St Francis Bay 1 Landscape Context



Plate 12: View from Jeffery's Bay

(Source: www.kowiesurfriders.co.za)



Plate 13: View of Jeffery's Bay beach

(Source: www.wikipedia.com)

The St Francis site is located in St Francis Bay, 3km offshore from Jeffrey's Bay, which is 60km from Port Elizabeth. Jeffrey's Bay is renowned for its peace and tranquility, and surfing is a key attraction. It is very scenic, with a coastal tourist sense of place with wide, open views of the ocean and a strong emphasis on retaining its reputation as a beautiful international surfing destination. It is very tourist-orientated and receptors would be very aware of changes to the sense of place. There are also a number of nature reserves in the area, which include the Seekoei River and Kabeljous Nature Reserves, the latter being one of the best preserved estuaries in the Eastern Cape.

12.2.2 Preliminary Conclusion

The proposed development is a large-scale project, which if located in high exposure receptor areas, would be visible and does have the potential to alter the sense of place for receptors sensitive to landscape modification. This is particularly seen in the proposed St Francis 1 site, which is not recommended due to the close proximity of the activities to tourist areas and receptors that would probably be highly sensitive to any landscape modification. A 2007 study into Sustainable Marine Aquaculture completed by the Marine Aquaculture Task Force (USA) noted that *"aquaculture requires dedicated space for pens, cages, rafts, or tanks. These uses can compete for space with other uses such as recreational boating and commercial and recreational fishing. These same floating structures when located in nearshore areas with developed shorelines also raise visual impact concerns. The subjective nature of these aesthetic impacts makes them challenging to resolve."*

Preliminary findings are that the **Coega sites (Algoa 2 and 3)** are the most associated with a harbour or built landscape context and, as such, these sites would be best suited to absorb the contrast generated from the proposed landscape modification. At the distance of 7km, it is unlikely that the proposed activities, or the boats/nets, will alter the local sense of place or landscape

character. Should these sites be defined as the preferred alternative, no further investigation would be required.

The **Port Elizabeth 1 site (Algoa 1)** is located within viewing distance of the main beach area, as well as from the Cape Recife Nature Reserve. Both these areas are important tourist areas and there is therefore a possibility that visual intrusion could take place. Further investigation into the potential impacts to the local sense of place should then be undertaken.

Visual impacts will be easier to determine once exact site determination has been ascertained, as well as possible infrastructure design.

12.3 SOCIO-ECONOMIC

A Baseline Socio-Economic Assessment (February 2012) was compiled by Prof Jonathan Bloom and J.H. van Zyl, of Emcebisi Business Advisers (Pty) Ltd, for the proposed Algoa Bay Marine Aquaculture development, from which the following is drawn. Please see **Appendix C, Annexure C3** for the full report.

12.3.1 Study Approach

The approach for assessing the socio-economic baseline and eventual impacts of the facility is presented in Figure 3. The illustration shows that an assessment of the financial feasibility and long-term viability of a venture is an essential point of departure as long-term positive economic impacts can only flow from a project that is financially sustainable or viable. It must also fit and demonstrate compatibility with current policy and guidelines that address the development of marine aquaculture. These requirements are a critical aspect of economic desirability, which ensures that the proposed venture compliments economic development and planning as reflected in existing policy and development guidelines for marine aquaculture.

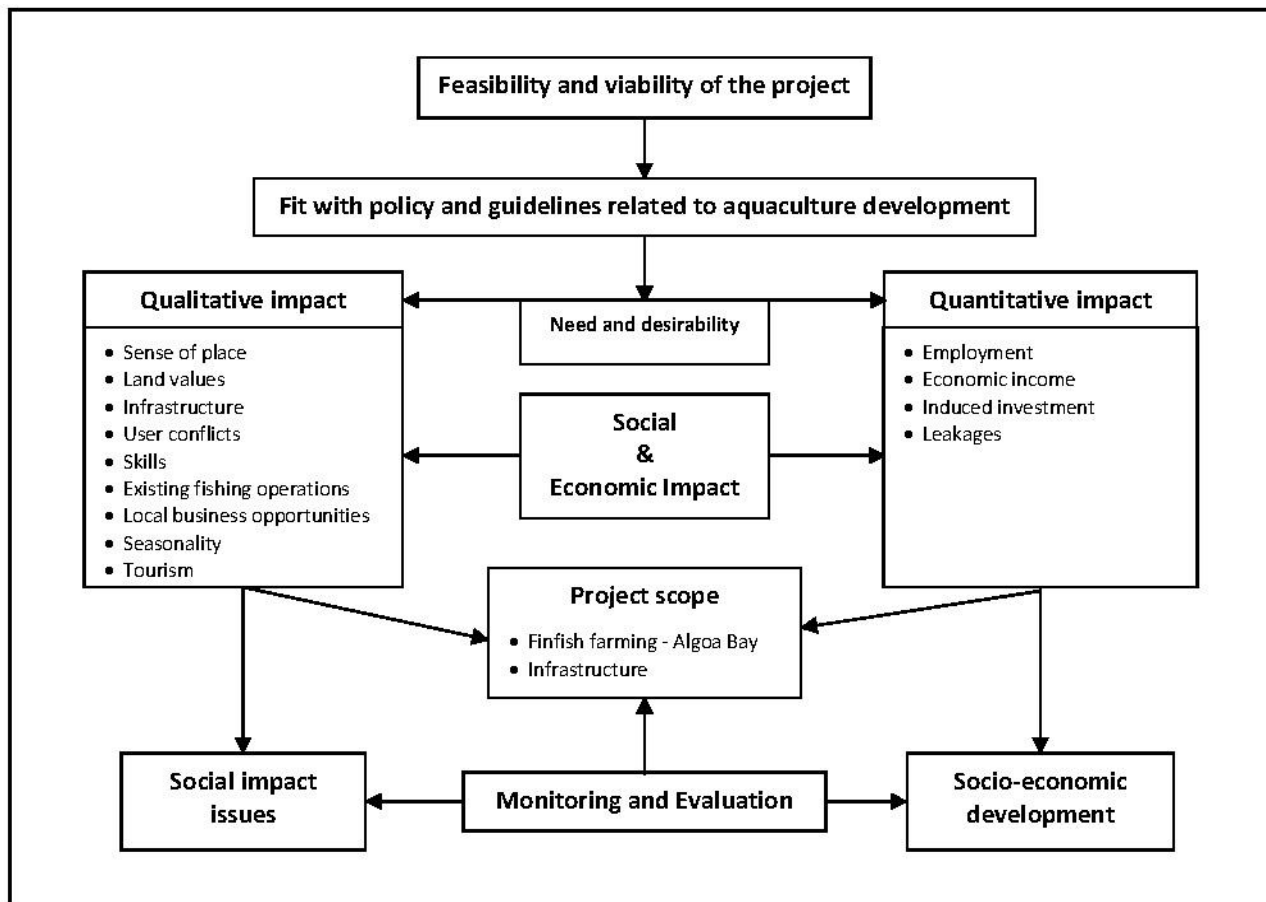


Figure 3: An Illustration of the methodology used to provide specialist socio-economic input for the EIA process.

The study area for the Baseline Socio-Economic Assessment is determined by the specification of concentric zones that are referenced as all sub-places (communities) within 20 km and 40 km from the sites proposed for marine aquaculture farms.

A total of 21 stakeholders that are directly affected by the development of Aquaculture Development Zones in Algoa Bay were interviewed through face-to-face discussions or via a telephone interview.

Secondary data sources, which included legislation, frame reports, guidelines and publications, were consulted to inform the findings of the independent Baseline Socio-Economic Assessment and complement the primary research.

12.3.2 Performance assessment of the Port Elizabeth Metro economy

The fishing industry in the Eastern Cape employs approximately 3 500 people in both primary and secondary production. The majority of the fishing infrastructure is concentrated in the Port Elizabeth Harbour where cold storage and export facilities exist (Eastern Cape Development Corporation, 2009). If the proportion of Agriculture, Forestry and Fishing output for the Nelson Mandela Metro to that of the Eastern Cape Province is used to determine the proportional contribution of fishing in the Nelson Mandela Bay Municipality to the Province, it appears that R32,2 million could be attributed to fishing in the Nelson Mandela Bay Municipal area.

Both the Coega and East London Industrial Development Zones (IDZ's) have established themselves as aquaculture industrial and manufacturing hubs with investments in this industry totalling over R75 million. Aquaculture investments in the province over the past four years have included:

- A prawn-farming venture in the Coega IDZ;

- Kob hatcheries in the East London IDZ;
- The expansion of a successful abalone farm on the Eastern Cape east coast;
- A marine caged finfish project in the Nelson Mandela Bay; and
- An in-land kob farming operation 30 km outside East London.

The qualitative assessment provided above suggests that the Manufacturing, Construction, Tourism, and Trade and Service sectors are **preferred**, while Tourism, Trade and Services are **performing** sectors. Both the **preferred** and **performing** sectors contribute to the current strength of the Port Elizabeth Metro economy and provide a basis for future economic growth and development in other sectors not yet considered in the context of a **preferred** or **performing** industry sector through the strengthening of inter-sectoral linkages. The linkage between Agriculture, Forestry and Fishing in the primary sector of the economy and Manufacturing (secondary sector) is emphasised as a strong opportunity to forged backward linkages and consequently enhance the output of both sectors.

12.3.3 Need for Aquaculture

The long-term forecast for the demand for food remains positive, driven by population growth and urbanization. In particular, demand for fish products is expected to continue to rise in the coming decades. However, future increases in per capita fish consumption will depend on the availability of fishery products. Major increases in fish food production are forecasted to come from aquaculture, while production from capture fisheries stagnates.

Taking into account the population forecasts, an additional 27 million tonnes of production will be needed in 2030 to maintain the present level of per capita consumption (United Nations, 2010). As the world's population continues to grow, lack of fresh water and space means that terrestrial agriculture is unlikely to be able to meet food demand. Freshwater aquaculture, which is largely confined to the tropics, is expanding, but its reliance on fresh water may limit long-term growth. Fishing catches have been declining globally for two decades, and although conservation measures and a shift in consumption patterns could allow some recovery, marine aquaculture holds more potential for sustained growth. Aquaculture (which includes marine aquaculture) is best positioned to contribute to food security, wealth and job creation. It also contributes to the reduction of protein deficiency in the diets of many rural communities (Science Daily, December 2009).

12.3.4 Possible Impacts

In keeping with the policies and guidelines for the development of marine aquaculture, the project should also be desirable from a societal cost-benefit perspective and demonstrate the need and desirability for the development of marine aquaculture. In addition to the assessment of the legislative context, the desirability would also be informed by an assessment of the socio-economic impacts.

In order to determine whether or not this is achievable, the impacts that may arise from such development must be assessed. The latter forms part of an assessment of the impacts, which is covered as part of the Impact Assessment phase of the Environmental Impact Assessment process.

- User conflict relate to several impacts as stated below:
 - Specialist tourism and eco-tourism activities (e.g. shark cage diving, whale watching, recreation fishing)
 - Existing and planned Marine Protected Areas in Algoa Bay and St Francis Bay
 - Port Traffic Zones – ships entering the bay, holding before proceeding to port, and movement between Port Elizabeth and Coega ports
 - Fishing grounds and vessel navigation routes in Algoa Bay

- Polluting - were fish farming causes damage to other marine life in proximity to the farm
- Existing marine aquaculture activities (pilot plant)
- Potential impact on existing fish industries that operate in the area (i.e. squid fisheries/recreational/commercial fisheries)
- Impact on infrastructure (land-based infrastructure (harbours/fishing factories/road infrastructure))
- Impact of limited available skilled labour for finfish cage culture;
- Impact on direct and indirect employment during the establishment and operational phases
- Impact on coastal real estate due to aesthetic nature of views and sense of place
- Ability of local businesses to supply goods and services including fish processing, nets and maintenance, transportation, packaging, containers, diving services, machinery and equipment
- Seasonality in traditional fishing sector vs all year round source of income and employment in an area that has a small agriculture and fishing sector and few alternatives to seasonal fishing and agriculture
- Accessibility to and opportunities for development of an export market for marine aquaculture product.

The impacts will be assessed as part of the Impact Assessment phase of the EIA.

13 PUBLIC PARTICIPATION

This Draft Scoping Report (DSR) follows the **Application Form** submitted to the national Department of Environmental Affairs (DEA) on **8 February 2011**. DEA, as the competent authority, accepted the Application (Ref: **12/12/20/2181**), authorising *Cape EAPrac* to commence with the public participation and Scoping phases of the environmental process. This **Draft Scoping Report (DSR)** (Ref: NMM101/05), is being advertised and made available to Interested and Affected Parties (I&APs) for a review and comment period of **40 days** extending from **Thursday 1st March 2011 to Thursday 12th April 2012**.

This report reflects the findings of preliminary specialist investigations and reports (Visual, Socio-Economic & Marine). It is also a tool to identify the need for further specialist investigations and assessments in the event that issues/impacts cannot be resolved during the scoping phase.

As part of the public participation process the following steps are taken to ensure compliance with the legislation and to allow ample opportunity for members of the public and key stakeholders to be involved and participate in the environmental process. Please see [Appendix D](#) for evidence of the Public Participation Process to date. The Public Participation Process has been undertaken according to the requirements of the 2010 NEMA EIA regulations. The following requirements i.t.o the scoping process have been undertaken and complied with in terms of Regulation 56:

- The **Nelson Mandela Metropolitan Municipality** (the local authority which has jurisdiction over the area), as well as other **organs of state** (including, but not limited to SANParks, Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) and Transnet National Ports Authority etc.), were notified and registered as key stakeholders;
- **Stakeholders and users** who may be affected were identified and notified of the process;
- **Advertisements** were placed in local newspapers (*The Herald* and *Die Burger Oos-Kaap*) on Friday 9th December 2011 and national newspapers (*The Sunday Times* and *Die Rapport*) on Sunday 11th December 2011, calling for stakeholders to register as Interested & Affected

Parties (I&APs), as well as to review and comment on the Strategic Environmental Assessment (SEA). A comment period from 9th December 2011 to 28 January 2012 was provided.

- All relevant **State Departments, key stakeholders and registered I&APs** have been sent notifications of the availability of this *Draft Scoping Report* via email, fax or post and requested to provide comment on or before 12th April 2012;
- **Advertisements** were placed in local newspapers (*The Herald* and *Die Burger Oos-Kaap*) on **Thursday 1st March 2012**, calling for stakeholders to review and comment on this Draft Scoping Report during a period of **40-days** (starting Thursday 1st March and ending Thursday 12th April 2012).
- The advert also provides the details for a **Public Meeting** to be held on Thursday 14th March 2012 at the Newton Park Library in Port Elizabeth;
- Hard copies of the **Draft Scoping Report (DSR)** have been placed at the Humansdorp Library, Jeffrey's Bay Library, Kouga Municipal Office, Port Elizabeth City Public Library and the Newton Park Library, to inform the public of the proposal and EIA process, and invite them to register as a stakeholders and provide comment (from Thursday 1st March 2012). The DSR was also made available on the *Cape EAPrac* website: www.cape-eaprac.co.za/active;
- A **Stakeholder Register** was opened and the details of all registered stakeholders entered for future correspondence. The register will be updated throughout the remainder of the process;
- A **Comments and Responses table** has been compiled, which will be updated throughout the remainder of the process. The table has been included in Appendix D, Annexure D3.
- An introductory meeting was held with the provincial Department of Economic Development, Environmental Affairs and Tourism on the 21st February 2012. The Department has been included as a key stakeholder in this Public Participation Process.

13.1 POTENTIAL ISSUES & CONCERNS

The following key issues and concerns (positive and negative) have been identified by the project team to date and from initial consultation with stakeholders:

- Incubation and transmission of **fish disease** and parasites from captive to wild populations:
 - In fish cage aquaculture, high stocking densities (typically 15-20 fish per cubic metre) serve as a breeding ground for disease and parasite infections (including blood, intestinal and ecto parasites). Infectious diseases and parasites are regarded as the single biggest threat to aquaculture, with the estimated losses from sea lice (genus *Caligus*) infections of salmon stock alone amounting to hundreds of millions of dollars annually (Staniford and Heuch et al. in Clark et al, 2012). The cultured stock is often prevented from exercising natural parasite shedding behaviours and the high number of concentrated hosts facilitates parasite and disease reproduction and transmission. This is not only a concern for the productivity of the cultured stock, but also threatens wild stocks due to enhanced transmission of parasite and diseases (Heuch, Krosek and Ford and Myers in Clark, et al. 2012). Transmission to wild stocks may take place by direct contact between wild fish and farmed stock as wild fish are often attracted to the cages, or simply as a result of the much higher concentration of pelagic parasite life history stages arising from fish farms.

Indigenous species currently under consideration for sea cage marine aquaculture in South Africa include **silver and dusky kob** (*Argyrosomus inodrus* and *A. japonicus*) and **yellowtail** *Seriola lalandii*. The parasites and diseases infecting these (and other finfish) species in South African waters are not well studied, although both kob species are known to be infected by sea lice of the same genus (*Caligus*) that caused serious problems amongst salmonids, as well as other copepod, trematode, Acanthocephalan (parasitic worm) monogenean (specifically the gill fluke *Diplectanum oliverii*), dinoflagellates (*Amyloodinium ocellatum*) and myxozoan species (DEAT, Grobler, Christison & Vaughan, Joubert in Clark et al 2012). Dusky kob are migratory and yellowtail are regarded as nomadic, whilst silver kob within the vicinity (10-100 km) of future sea cages will also likely come into contact with farmed stock, and all three species will be at an increased risk of contracting diseases and or parasites. Potential negative effects on wild stocks are particularly concerning as all three species are important in the commercial and recreational line fisheries and furthermore, both wild kob species are assessed as collapsed (Griffiths in Clark et al, 2012). Dusky kob has recently been assessed using IUCN criteria and are considered Vulnerable in South Africa (Sink *et al.* in prep). Although treatment of cultured stock to control disease and parasite outbreaks is possible (unlike wild stocks), chemical treatment is not without further environmental impacts, whilst build up of antibiotic and chemical resistance is becoming increasingly problematic (Staniford 2002);

- Pollution of coastal waters due to the **discharge of organic wastes**:
 - Untreated wastes resulting mainly from **uneaten food and faeces** of fish in sea cages are discharged directly into the sea and are not an insignificant source of nutrients (Brooks et al. in Clark 2012). Studies have documented increased dissolved nutrients and particular components (POC and PON) both below, and in plumes downstream, of fish cages (Pitta in Clark et al, 2012). These wastes impact both on the benthic environment and on the water column. Sediments and benthic invertebrate communities under fish farms usually show **chemical, physical and biological changes** attributable to **nutrient loading**. Elevations in carbon, ammonia and hydrogen sulphide concentrations are frequently observed (Carroll, Heggoey in Clark et al. 2012). Nutrient enrichment and resulting eutrophication of sediments under fish cages is regarded as serious issue in some areas (Staniford in Clark et al, 2012). Impacts on benthic habitats below fish cages does, however, tend to be localized. Most studies indicate that the effect is contained within a few hundred meters (Porrello, Merceron and Kempf in Clark et al 2012), but one Mediterranean study was able to detect changes up to 1000 m away (Sara in Clark et al. 2012).

The extent of contamination of the sediments under fish cages is obviously highly site and project specific. Near shore marine environments with low flushing rates and or sediments susceptible to organic loading should be avoided when selecting sites for finfish cages. Cages should also be situated in water of sufficient depth to allow flushing and reduce the build up of wastes directly below cages. Feeding by wild fish on the wastes and uneaten food below cages has also been shown to mitigate the impacts of waste on benthic environments. Some studies have reported that 40-80% of the uneaten food and waste falling out of cages was eaten by wild fish (Vita and Felsing in Clark et al. 2012). This in turn, however, may increase the risk of parasite

and disease transmission to wild stocks and may also attract piscivores to cages with the associated problems thereof discussed below.

Nutrient loading, of the water column along with the reduction of dissolved oxygen (O₂) concentrations, as a result of fish cages have been implicated in conditions that stimulate harmful algal blooms, which pose a threat human health and shellfish mariculture operations (Gowen & Ezzi, Berry, Davies, Navarro, Ruiz, all cited in Clark et al 2012).

- Escape of **genetically distinct fish** that compete and interbreed with wild stocks that are often depleted:
 - Escape of fish from sea cages that may be established in South African is inevitable given that escape from fish farms is a common event globally. Even in countries with advanced sea cage farming industries and calm sheltered waters such as Norway, it is a regular occurrence with an estimated 1.5 million escaped salmon present in Norwegian fjords at any one time (Heuch in Clark et al, 2012). Given the exposed nature of the South African coast and the abundance of large piscivores, regular escapes possibly of large numbers of stock as a result of cage failure or breach, is highly likely.

Farmed fish that are typically spawned from a limited number of brood stock, have reduced genetic diversity compared to wild stocks, and will have undergone different selective pressures (will also have likely been artificially selected for traits such as rapid growth). Genetically distinct escapees may interbreed or even out-compete wild stocks, resulting in overall reductions on genetic diversity with resultant reductions in the fitness of wild populations (Hershberger, Naylor, 2005 Ford and Myers in Clark et al 2012). The degree of genetic impacts of escaped farm fish on wild stocks is largely determined by the extent of genetic differentiation between farmed and wild stocks, the quantity of escapees compared to the size of the wild stock, and the survival and reproductive success of escaped fish (Falconer and Mackay in Clark et al, 2012). Until **reproductively sterile fingerlings** are available for fish cage farming in South Africa, however, the potential genetic impacts of escapees remain a serious threat to wild stocks. The risk is further accentuated by the collapsed status of many South African fish species that will likely be used in cage farming;

- Chemical **pollution** of marine food chains and potential risk to human health due to the use of therapeutic chemicals in the treatment of cultured stock and antifouling treatment of infrastructure:
 - Disinfectants, antifoulants and therapeutic chemicals (medicines) are typically used in sea cage fish culture. These chemicals are often directly toxic to non-target organisms and may remain active in the environment for extended periods (Kerry, Costello in Clark et al. 2012). Inappropriate use of medicines may lead to resistance in pathogenic organisms. Some antifoulants contain trace metals (usually copper) that can elevate environmental concentrations, can accumulate in sediments and can bioaccumulate in susceptible organisms (Costello in Clark et al. 2012). Some of the chemicals used historically on fish farms to combat sea lice infestations were carcinogenic, whilst others are known to adversely affect reproduction in salmonids (Staniford, More & Waring in Clark et al 2012). Global bodies, (e.g. the World Health

Organisation and GESAMP), have highlighted the environmental and public health threats of chemical use on fish farms (GESAMP, WHO in Clark et al 2012).

Due to these concerns, the salmon farming industry is moving away from the use of antibiotics and organophosphates, but numerous other potentially hazardous chemicals such as synthetic pyrethroids, artificial colorants, antifoulants, and antiparasitics and are still a serious concern (Staniford in Clark et al 2012).;

- **Physical hazard** to cetaceans and other marine species that may become entangled in ropes and nets and **Injury** to piscivorous marine animals (including mammals, sharks and birds) from attempts to remove fish from cages and may become tangled:
 - Piscivorous seals, dolphins, sharks, fish and birds are frequently attracted to the large concentrations of fish and or food in sea cages (Wuersig and Gailey, Vita, Kloskowski in Clark et al 2012). Their attempts to get at the stock induce a **stress response** (and consequent decreased growth rates and resistance to disease) in the cultured fish and can damage nets, allowing fish to escape. The predators themselves may also become **entangled** in sea cage nets with potentially fatal consequences. The most effective and common response by farmers is to install top and curtain anti predator nets, although farmers will also shoot problem animals (which is usually illegal), or use acoustic deterrents (Pemberton & Shaughnessy, Wickens, Beveridge, Wuersig & Gailey in Clark et al 2012). In the case of top predators, which are frequently relatively rare, lethal reactions by farmers to predation attempts may prove unsustainable, whilst acoustic deterrent devices may damage marine mammal's hearing and interfered with navigation (Wuersig and Gailey in Clark et al 2012). Seals, sharks and predatory sea birds are abundant along the Southern and Eastern Cape coast and interactions with fin fish sea cages are likely;
- **User conflict** (tourism, MPAs, Port traffic, vessel navigation and existing fishing industries in the area also aesthetic and visual impacts to coastal real estate) due to exclusion from marine aquaculture zones for security reasons:
 - Due to security concerns, fish farms will need to **exclude other users** from what was previously public sea space. As a result of the lack of sheltered sea space off South Africa's coast, most of the areas suitable for cage culture are already heavily utilised for fishing, ecotourism and other commercial and recreational activities. Several important commercial fisheries also operate in areas where fish cage culture may be viable (particularly chokka squid and inshore trawl); resistance from these bodies to the declaration of exclusive ADZs is likely. Coastal landowners may also object to the establishment of fin fish cages within sight of the shore due to aesthetic concerns;
- Removal of **fishing pressure** from indigenous, wild stock species, thus allowing their numbers to regenerate:
 - Fishing pressure on wild stock is reaching unsustainable levels and is likely to continue (Clark et al, 2012). The removal of this pressure by means of finfish cage culture could provide respite to wild stock whilst still providing sufficient protein foods for consumption;
- Potentially enable threatened marine ecosystems to **recover** in the event that natural fishing operations are replaced by caged fishing;

- Provision of a **sustainable** supply of fish to supplement the existing and growing local and international human demand for resources;
- Impact on **infrastructure** (land-based infrastructure (harbours/fishing factories/road infrastructure):
 - Increased manufacturing or processing activities may require more infrastructure facilities and additional traffic on existing infrastructure. However, it is also conceivable that cultured stock will replace the quantities of wild capture stock, thus keeping the status quo and not increasing pressure on existing infrastructure;
- Impact of **limited available skilled labour** for finfish cage culture and direct and indirect employment:
 - Finfish cage culture is a specialised method of aquaculture. Since it is not a robust commercial industry as yet in South Africa, the skills available to develop, manage and maintain sea based marine aquaculture have not been sufficiently developed;
- Ability of local businesses to **supply goods and services** including fish processing, nets and maintenance, transportation, packaging, containers, diving services, machinery and equipment;
- **Seasonality** in traditional fishing sector vs all year round source of income and employment in an area that has a small agriculture and fishing sector and few alternatives to seasonal fishing and agriculture;
- Accessibility to and opportunities for development of an **export market** for marine aquaculture product.

These potential impacts (positive and negative) as identified through scoping thus far, will be investigated further by the project team to determine the likelihood of each one's potential for significant impact levels. The next phase of the environmental impact assessment process will report on the detailed impact assessment, and will include feedback on the recommended mitigation measures and preferred alternatives.

The Plan of Study for the Environmental Impact Report (EIR) contains the specifications for how the specialists are required to consider, evaluate and assess the potential impacts already identified, as well as any other impacts that may have been overlooked.

14 PLAN OF STUDY FOR ENVIRONMENTAL IMPACT REPORT

This section outlines the assessment methodology and legal context for specialist studies. Based on the issues raised by the project team, specific impact assessments are required to address issues that may result in significant impacts. For these specialist impact assessments, the specialists have been provided with a set of criteria for undertaking their assessments, to allow for comparative assessment of all issues. These criteria are detailed in the Terms of Reference to each specialist and summarised below.

14.1 CRITERIA FOR SPECIALIST ASSESSMENT OF IMPACTS

These criteria are based on the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989, as well as the Specialist Guidelines drawn up in terms of the NEMA Regulations.

All possible impacts need to be assessed – the **direct, in-direct as well as cumulative impacts**. Impact criteria should include the following:

- **Nature of the impact**

This is an appraisal of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

- **Extent of the impact**

Describe whether the impact will be: local extending only as far as the development site area; or limited to the site and its immediate surroundings; or will have an impact on the region, or will have an impact on a national scale or across international borders.

- **Duration of the impact**

The specialist should indicate whether the lifespan of the impact would be short term (0-5 years), medium term (5-15 years), long terms (16-30 years) or permanent.

- **Intensity**

The specialist should establish whether the impact is destructive or benign and should be qualified as low, medium or high. The specialist study must attempt to quantify the magnitude of the impacts and outline the rationale used.

- **Probability of occurrence**

The specialist should describe the probability of the impact actually occurring and should be described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

The impacts should also be assessed in terms of the following aspects:

- **Status of the impact**

The specialist should determine whether the impacts are negative, positive or neutral ("cost – benefit" analysis). The impacts are to be assessed in terms of their effect on the project and the environment. For example, an impact that is positive for the proposed development may be negative for the environment. It is important that this distinction is made in the analysis.

- **Cumulative impact**

Consideration must be given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts must be evaluated with an assessment of similar developments planned and already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact.

- **Degree of confidence in predictions**

The specialist should state what degree of confidence (low, medium or high) is there in the predictions based on the available information and level of knowledge and expertise.

Based on a synthesis of the information contained in the above-described procedure, the specialists are required to assess the potential impacts in terms of the following significance criteria:

- **No significance:** The impacts do not influence the proposed development and/or environment in any way.
- **Low significance:** The impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance:** The impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance:** The impacts will have a major influence on the proposed development and/or environment.

The specialist impact assessments identified for the Plan of Study include:

- Specialist Marine Impact Assessment;
- Specialist Visual Impact Assessment; and
- Specialist Socio-economic Impact Assessment.

Each of these specialist must provide an a considered assessment of the impacts identified in this scoping phase of the EIA process and present their findings in a report format, taking into consideration the criteria above.

The final impact assessment report should as a minimum include the following sections:

- Executive Summary
- Introduction And Description Of Study
- Methodology
- Results
- Assessment Of Impacts (Direct, In-direct & Cumulative, including mitigation measures to reduce negative impacts and measures to enhance positive impacts and the completion of impact tables)
- Comparative Assessment between project Alternatives
- Discussion and Recommendation for Preferred Alternative
- Specialist recommendation for Pre-Construction, Construction and Operational Phases
- Conclusion

14.2 BRIEF FOR SPECIALIST STUDIES TO BE UNDERTAKEN AS PART OF THE EIA

- Each specialist is required to consider the project in as much detail as is required to inform his/her impact assessment.
- Specialists must ensure that they are aware of the necessary **planning, environmental and service requirements** associated with the proposal.
- Specialists must ensure that they **liaise with other relevant specialists** (via the EAP) if it seems necessary to use information from another discipline.
- Impact Assessments must **consider all the identified alternatives** in order to provide a comparative assessment of impacts:

- Specialists should consider **national and international guidelines and standards** relevant to their respective focus area.
- Any **assumptions** made and any uncertainties or **gaps in knowledge**, as well as **limitations** regarding the specialist studies, must be clearly described and explained.
- The proximity of the site in relation to **key features** such as the St Croix Island MPA must be considered.
- The draft impact assessment report of each specialist are subject to public/stakeholder review and comment – all comments received will be considered by each specialist, responded to and the final impact assessment report updated accordingly.

15 PROCESS TO BE FOLLOWED

The following process is to be followed for the remainder of the environmental process:

- This **Draft Scoping Report** is made available for public review and comment for a period of **40 days**. Comments received on this document will be responded to and included in the *Final Scoping Report*. The Final Scoping Report will be made available for review and comment for a further 21-day period once all comments have been included. Registered Interested and Affected Parties will be notified when the Final Report is available on the *Cape EAPrac* website and/or be provided with digital copies of the FSR;
- Once the DEA accepts the Final Scoping Report and Plan of Study for Environmental Impact Report, the relevant specialists will undertake and complete their respective impact assessments;
- Discussions will be held with the various specialists and project team members in order to determine how best the development concept should be amended to avoid significant impacts;
- In the event that amendments to the development plan are not required, the Draft Environmental Impact Report (DEIR) can be concluded;
- However, if an amendment becomes necessary, changes can be made to the layout plan to form another development alternative that will address and/or avoid any significantly detrimental impacts;
- Such an alternative will be circulated to all the relevant specialists in order for them to complete their comparative assessments and final impact assessment reports;
- The DEIR will be made available for public review and comment;
- All comments and inputs received during the comment & review period will be included with the Final EIR;
- The Final EIR will be submitted to the DEA for consideration and decision-making;
- The DEA's decision (Environmental Authorisation) on the FEIR will be communicated with all registered I&APs.

The competent Authority will be involved through continuous email and report **updates** on the process, in particular, when the **draft and final Environmental Impact Reports** have been completed. Should any unforeseen problems occur during the course of the impact assessment phase the competent authority will also be **contacted** for an **update and/or advice**.

16 CONCLUSIONS

This scoping exercise is currently being undertaken to present **concept proposals** to the public and potential Interested & Affected Parties and to identify environmental issues and concerns raised as a result of the proposed development alternatives to date. This will allow I&APs, authorities, the project team, as well as specialists to provide input and raise issues and concerns, based on baseline studies undertaken.

The sites identified in the SEA are being further investigated to determine the exact locations available for the proposed sea based aquaculture development zones. This is being done by a **12 month monitoring** of the environment which will provide seasonal site data. This data will be made available in the Impact Assessment phase of this EIA.

The impacts identified during this scoping exercise may be expanded on during the Public Participation phase. All impacts will be assessed as part of the Environmental Impact Assessment phase.

This Draft Scoping Report (DSR) summarises the process to date, reports on the findings of relevant baseline studies.

Comments in reaction to this Draft Scoping Report will be responded to and included in the Final Scoping Report for submission to DEA. Comments must be submitted on or before 12 April 2012, in writing to:

Cape EAPrac

Melissa Mackay

P.O. Box 2070, George, 6530

Email: mel@cape-eaprac.co.za

Fax: 044 874 0432

17 REFERENCES

- Brownlie, S.** (2005). *Guidelines for Involving Biodiversity Specialists in EIA Processes: Edition 1*. CSIR Report No ENV-S-C 2005 053 C. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning, Cape Town.
- Bloom, J.** (2012). *Baseline Socio-Economic Assessment for the development of Aquaculture Development Zones for Mariculture Fish Farming in Algoa Bay*. Umcebisi Business Advisers (Pty) Ltd, Stellenbosch, South Africa.
- Clark, B.M., Hutchings, K., Porter, S. & Sink, K.** (2011). *Strategic Environmental Assessment – Identification of potential marine aquaculture development zones for fin fish cage culture*. Anchor Environmental, Cape Town, South Africa.
- Clark, B.M., Hutchings, K., Porter, S. & Sink, K.** (2012). *Baseline Marine Report – Marine aquaculture development zones for fin fish cage culture in the Eastern Cape*. Anchor Environmental, Cape Town, South Africa.
- DEAT** (2002). *Integrated Environmental Management Information Series 3: Stakeholder Engagement*. Department of Environmental Affairs and Tourism, Pretoria.
- DEADP** (2003). *Waste Minimisation Guideline for Environmental Impact Assessment reviews*. NEMA EIA Regulations Guideline & Information Series, Department Environmental Affairs & Development Planning.
- DEAT** (2004). *Criteria for determining alternatives in EIAs*, Integrated Environmental Management, Information Series 11, Department of Environmental Affairs & Tourism, Pretoria.
- DEAT** (2004). *Environmental management Plans*, Integrated Environmental management, Informatino Series 12, Department Environmental Affairs & Tourism
- DEAT** (2005). *Assessment of Impacts and Alternatives*, Integrated Environmental Management Guideline Series, Department of Environmental Affairs & Tourism, Pretoria.
- DEAT** (2005). *Guideline 4: Public Participation*, in terms of the EIA Regulations 2005, Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism, Pretoria.
- DEADP** (2005). *Guideline for the review of specialist input in the EIA process*. NEMA EIA Regulations Guideline & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP** (2005). *Guideline for involving biodiversity specialists in the EIA process*. NEMA EIA Regulations Guideline & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP** (2005). *Guideline for environmental management plans*. NEMA EIA Regulations Guideline
- DEAT** (2006). *EIA Regulations* in terms of the National Environmental Management Act (Act No 107 of 1998) (Government Notice No R 385, R 386 and R 387 in Government Gazette No 28753 of 21 April 2006).
- DEADP** (2006). *Guideline on the Interpretation of the Listed Activities*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.

- DEADP** (2007). *Guide on Alternatives*, NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP** (2007). *Guideline on Exemption Applications*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP** (2007). *Guideline on Public Participation*. NEMA EIA Regulations Guidelines & Information Document Series, Department of Environmental Affairs & Development Planning.
- DEADP** (2009). *Guideline on Need & Desirability*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP** (2009). *Guideline on Alternatives*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP** (2009). *Guideline on Transitional Arrangements*, NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP** (2009). *Guideline on Exemption Applications*. NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEADP** (2009). *Guideline on Public Participation*. NEMA EIA Regulations Guideline and Information Document Series, Department Environmental Affairs & Development Planning.
- DEAT** (2007). *Marine Aquaculture in South Africa*. Pretoria, South Africa.
- Eastern Cape Development Corporation (ECDC)** (2009). *Finfish Mariculture*. East London, South Africa.
- Keatimilwe K & Ashton PJ** 2005. *Guideline for the review of specialist input in EIA processes*. Department Environmental Affairs & Development Planning.
- Lochner P** (2005). *Guideline for Environmental Management Plans*. Department Environmental Affairs & Development Planning.
- Münster, F.** (2005). *Guidelines for Determining the Scope of Specialist Involvement in EIA Processes: Edition 1*. CSIR Report No ENV-S-C 2005 053 A. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning, Cape Town.
- Oberholzer B** (2005). *Guideline for involving visual & aesthetic specialists*. Department Environmental Affairs & Development Planning.
- Winter S & Beaumann N** (2005). *Guideline for involving heritage specialists in EIA processes*. Department Environmental Affairs & Development Planning.
- SANBI Biodiversity GIS** (2007). South African National Biodiversity Institute, Cape Town, South Africa.
- Stead, S.** (2012). *Draft Baseline Visual Assessment – Proposed Eastern Cape Marine Aquaculture Development*. VRMA, George, South Africa.